

Service Manual

(1)

ORDER NO.
ARP2121

COMPACT DISC JUKEBOX

CJ-V50

• Refer to the service manual ARP2122, CJ-V50.

• This manual is applicable to the HEM type.

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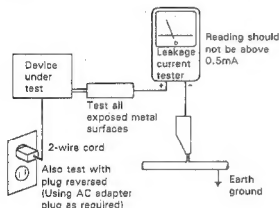
1. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

WARNING!

Lithium batteries. Danger of explosion. Replacement must be done by qualified personnel and only by following the instructions given in the service manual.

This warning is stated on the product or in the operating instructions. When replacing the lithium batteries, follow the note below.

Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire. The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

Note: The lithium battery installation position is shown in the exploded view and the P.C. board pattern.

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or a additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

ADVARSEL!

Lithiumbatteri — Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Lever det brugte batteri tilbage til leverandøren.

Denne advarsel er angivet på produktet eller i brugsvejledningen. Ved udskiftning af lithium batterierne følges nedenstående anvisning. Batterierne må kun udskiftes med batterier af samme type og mærke.

VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Denna varning finns på apparaten eller i bruksanvisningen. Följ nedanstående anvisningar vid byte av litiumbatterier. Batterierna får endast bytas ut mot litiumbatterier av samma typ och fabrikat.

(FOR EUROPEAN MODEL ONLY)

VARO!

AVATTAESSA JA SUDJALUKITUS
OHITETTAESSA OLET ALTTIINA
NAKYMATTOALLE LASERSÄTEILYLLE.
ÄLÄ KATSO SÄTEESEEN.



LASER
Kuva 1
Lasersäteilyn
varoituserkki

ADVERSEL:

OSYNNIG LASERSTRÅLING VED ÅBNING
NÅR SIKKERHEDSÅFBRYDERE ER UDE AF
FUNKTION! UNDGÅ UDSÆTTELSE FOR
STRÅLING.

VARNING!

OSYNNIG LASERSTRÅLNING NÅR DENNA
DEL ÄR ÖPPNAD OCH SPÄRREN
ÄR URKOPPLAD. BETRÄKTA EJ STRÅLEN.

WARNING!

DEVICE INCLUDES LASER DIODE WHICH
EMITS INVISIBLE INFRARED RADIATION
WHICH IS DANGEROUS TO EYES. THERE IS
A WARNING SIGN ACCORDING TO PICTURE
1 INSIDE THE DEVICE CLOSE TO THE LASER
DIODE.



LASER
Picture 1
Warning sign for
laser radiation

IMPORTANT

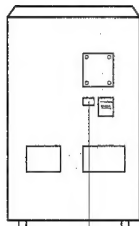
THIS PIONEER APPARATUS CONTAINS
LASER OF HIGHER CLASS THAN 1.
SERVICING OPERATION OF THE APPARATUS
SHOULD BE DONE BY A SPECIALLY
INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LABEL CHECK

• MAIN SECTION (REAR SIDE)



VARO!

AVATTAESSA JA SUDJALUKITUS OHITETTAESSA OLET ALTTIINA NAKYMATTOALLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
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PRW0233

CAUTION
INVISIBLE LASER
RADIATION WHEN OPEN,
AVOID EXPOSURE
TO BEAM

25W/10

WEM type

ADVERSEL:

OSYNNIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSÅFBRYDERE ER UDE AF FUNKTION! UNDGÅ UDSÆTTELSE FOR STRÅLING.

VORSICHT!

UNSICHTBARE LASERSTRÅHLUNG TRITTS AGE, WEIHN DICKE! UDGR KLAPPEN GEFÄHRT GIBT NICHT DEM STRAHL AUSSETZEN!



WEM type

• CD SECTION
(REMOVING CONDITION
OF THE BONNET COVER)

**CLASS 1
LASER PRODUCT**

PRW-228

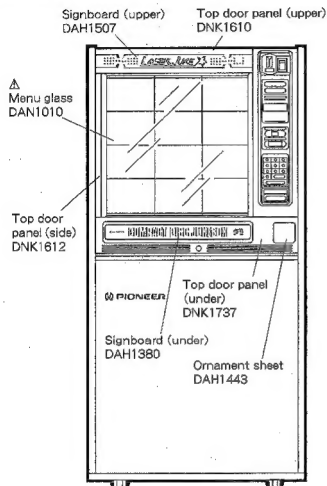
HEM type

Additional Laser Caution

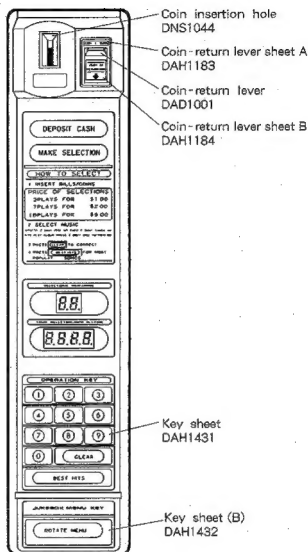
1. The player microcomputer checks the inserting condition of magazines A, B and C by using the combined signals of the SENS1 (S804), SENS2 (S805), SENS3 (S806), LOCK1 (S801), LOCK2 (S802) and LOCK3 (S803) switches. It is after these three magazines are fully inserted that commands from the control microcomputer are accepted. The laser diode is turned ON for illumination by outputting the laser diode ON signal from the control microcomputer when the CLAMP switch (S1001) (DSK1001), which signals that the tray is to be pulled from the magazine and detects clamping condition, is set to ON and the player receives the "rising command" in the disc clamping condition. If no disc is available, it turns OFF after 20 seconds. The illuminated laser diode goes out when receiving a "Reject command", a "disc change command" or a "magazine eject command". The laser diode continues to oscillate when pin ③ of CXA1081S (IC1) is connected to GND or to pin ⑤.
2. If the fault condition described in 1 is induced with the cover open and with the servo mechanism block removed to be turned over, close viewing of the objective lens with the naked eye will cause exposure to a class 1 or higher laser beam.

2. PARTS LOCATIONS

2.1 EXTERIOR

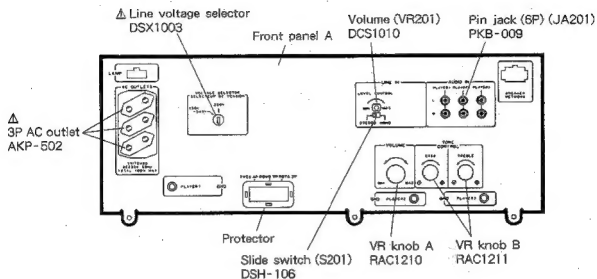


• OPERATION SECTION

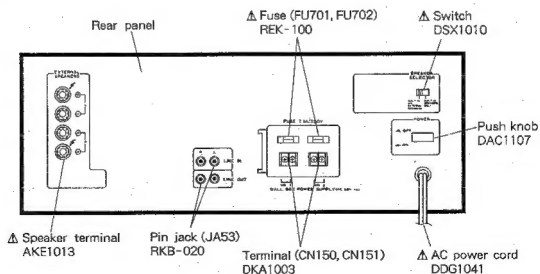


2.2 AMP SECTION

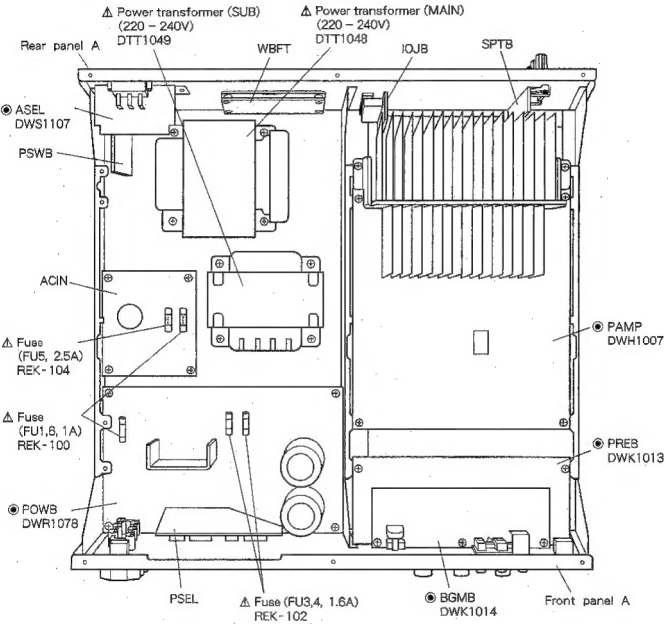
● FRONT VIEW



● REAR VIEW

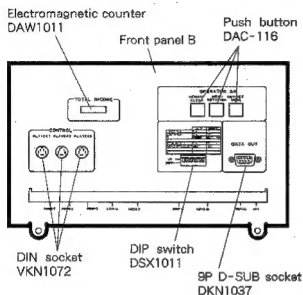


● TOP VIEW

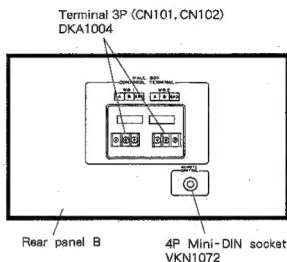


2.3 COMMANDER SECTION

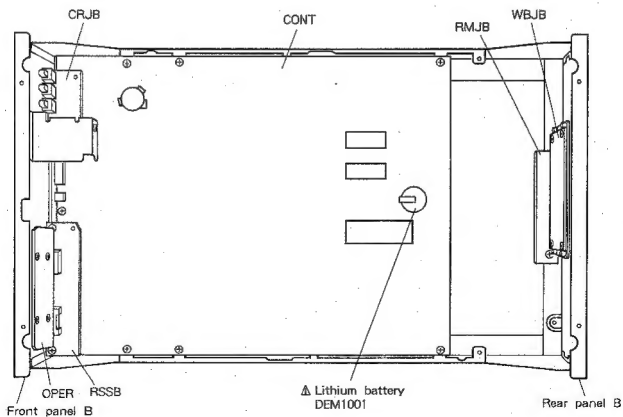
● FRONT VIEW



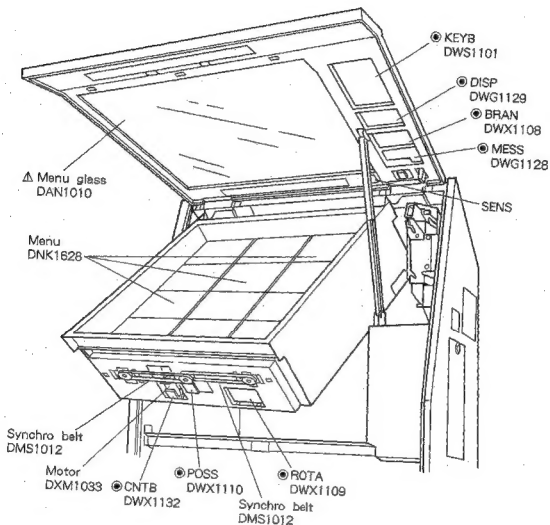
● REAR VIEW



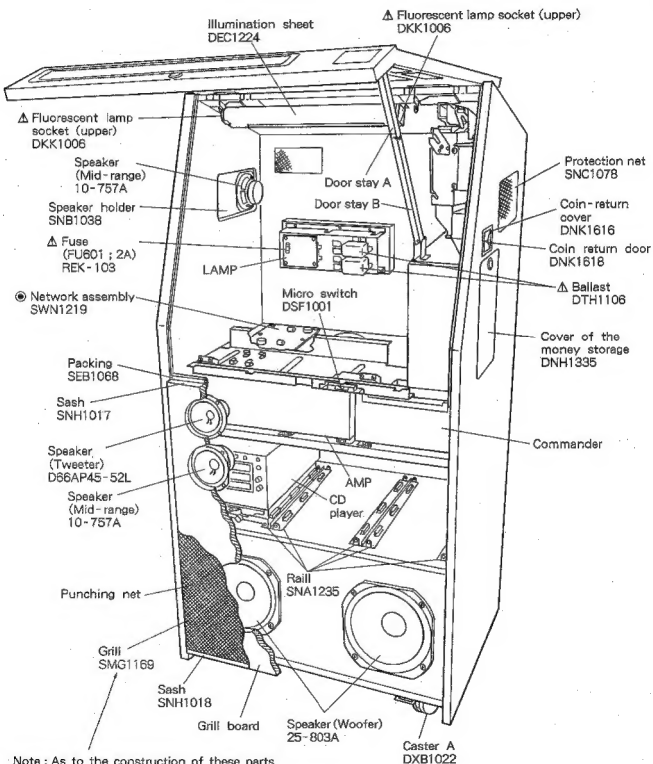
● TOP VIEW



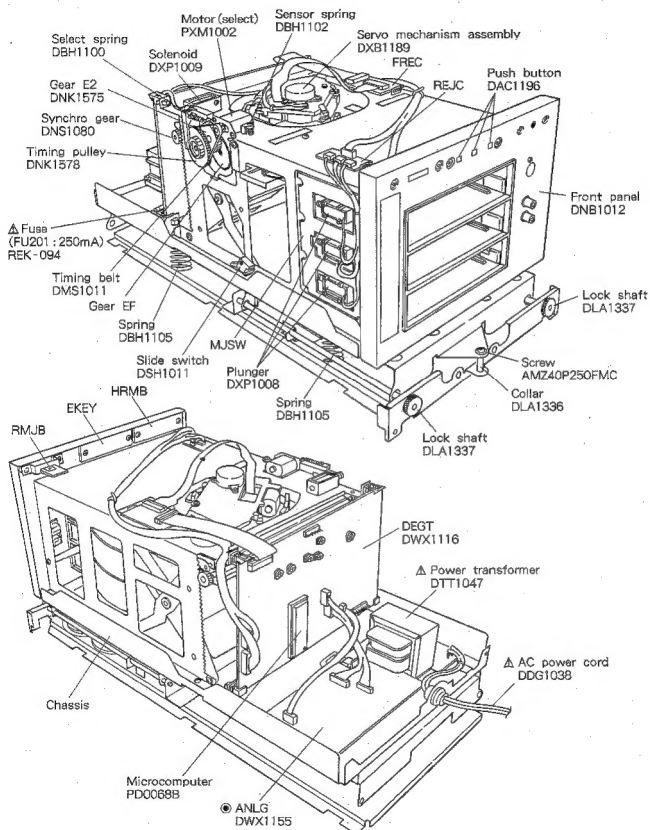
2.4 REMOVING CONDITION OF THE UNDER LAMP ASSEMBLY



2.5 REMOVING CONDITION OF THE MENU BOARD



2.6 CD PLAYER SECTION



3. DISASSEMBLY

3.1 REMOVING THE TOP DOOR ASSEMBLY

1. Open the menu door, and remove six screws ① and two R pins to remove the menu board assembly.

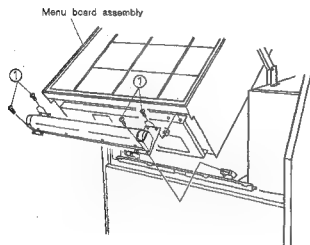


Fig. 3-1

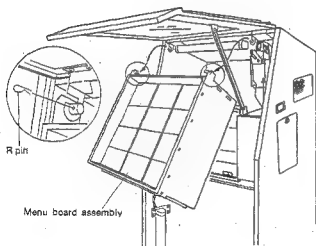


Fig. 3-2

2. Loosen four screws ② and remove two screws ③ to remove the upper lamp assembly.
3. Remove two screws ④ to remove the CA holder C assembly.

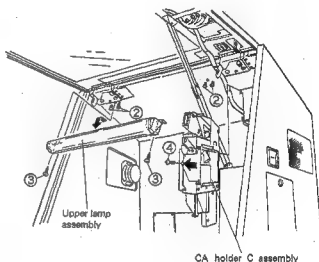


Fig. 3-3

4. Remove six screws ⑤, two screws ⑥ and two screws ⑦ to remove the top door assembly.

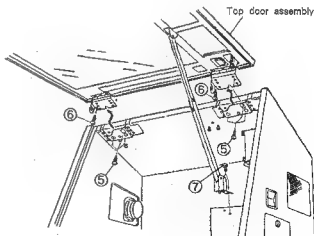


Fig. 3-4

3.2 REMOVING THE MENU MOTOR ASSEMBLY

1. Remove two screws ① to remove the menu motor assembly.

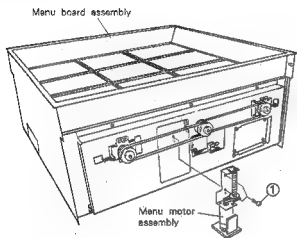


Fig. 3-5

3.3 REMOVING THE SYNCHRO BELT

1. Loosen two screws ① and remove two springs with plier, and remove two synchro belts by pushing the synchro pulley in the direction of arrow.

Note : When the synchro belt is replaced, be sure to perform the three surfaces of the menu synchronous adjustment.

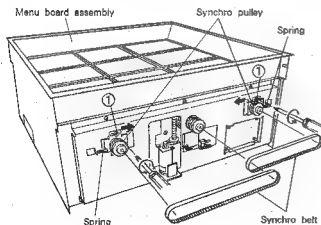


Fig. 3-6

3.4 REMOVING THE LAMP AND NETWORK ASSEMBLY

1. Remove six screws ① to remove the network assembly.
2. Remove four screws ② to remove the LAMP.

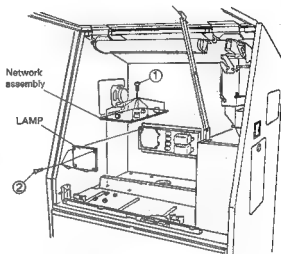


Fig. 3-7

3.5 REMOVING THE ROTA AND POSS

1. Remove four screws ① to remove the ROTA.
2. Remove a screw ② to remove the POSS.

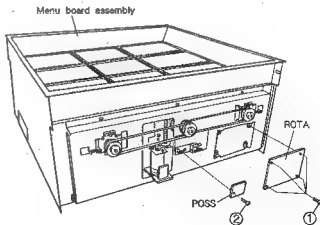


Fig. 3-8

3.6 REMOVING THE MESS, BRAN, DISP AND KEYB

1. Remove four screws ① to remove the MESS.
2. Remove four screws ② to remove the BRAN.
3. Remove four screws ③ to remove the DISP.
4. Remove eight screws ④ to remove the KEYB.
5. Remove two screws ⑤ to remove the SENS.

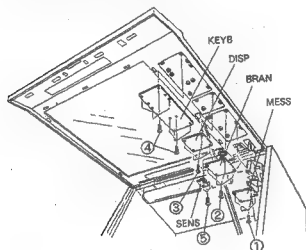


Fig. 3-9

3.7 REMOVING THE AMP, COMMANDER AND CD PLAYER

1. Remove three screws ① to remove the AMP.
2. Remove two screws ② to remove the commander.
3. Remove two screws ③ to remove the CD player.

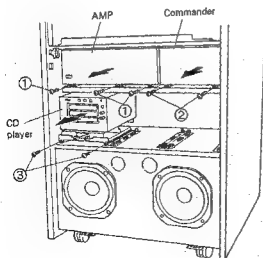


Fig. 3-10

3.8 REMOVING THE SPEAKER (WOOFER)

1. Remove four screws ① and disconnect the connector of speaker cord to remove the speaker.

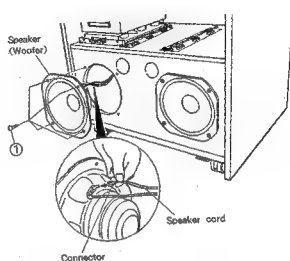


Fig. 3-11

3.9 REMOVING THE GLASS

1. Remove the top door assembly. (Refer to section 3.1.)
2. Set the glass side of top door assembly to the downward. Remove thirty-seven screws ① to remove the top door base, then remove the glass.

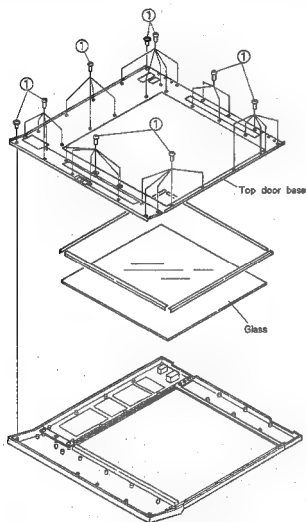


Fig. 3-12

3.10 REMOVING THE GLOW LAMP

Refer to the operating instructions (page 20).

4. P. C. BOARDS NAME

MAIN SECTION

MESS.....MESSAGE
 DISP.....DISPLAY
 KEYB.....KEYBOARD
 BRAN.....BRANCH
 ROTA.....ROTATION
 POSS.....POSITION SENSOR
 LAMP.....LAMP
 CNTB.....COUNTER BOARD
 PAMP.....POWER AMPLIFIER
 SPTB.....SPEAKER TERMINAL BOARD
 PREB.....PRE AMPLIFIER BOARD
 POWB.....POWER BOARD
 ACIN.....AC INPUT BOARD
 PSEL.....PRIMARY VOLTAGE SELECTOR BOARD
 ASEL.....AMPLIFIER VOLTAGE SELECTOR BOARD
 PSWB.....POWER SWITCH BOARD
 CONT.....CONTROL
 OPER.....OPERATION
 CRJB.....CD REMOTE JACK BOARD
 RMJB.....REMOTE CONTROL JACK BOARD
 SENS.....SENSOR
 WBJB.....WALL BOX JACK BOARD
 RSSB.....RS232C AND SW BOARD
 BGMB.....BACK GROUND MUSIC BOARD
 IOJB.....IN OUT JACK BOARD
 WBFT.....WALL BOX FUSE TERMINAL

CD PLAYER SECTION

EKEY.....EJECT KEY
 DEGT.....DIGITAL DECODING UNIT
 ANLG.....ANALOG UNIT
 DJAK.....DIGITAL JACK
 PJAK.....PIN JACK
 MJSW.....MAGAZINE EJECT SWITCH
 SENS.....SENSOR
 REJC.....REJECT
 FREC.....FLEXIBLE READER CONNECTOR
 HRMB.....HOUR METER BOARD
 RMJB.....REMOTE JACK BOARD

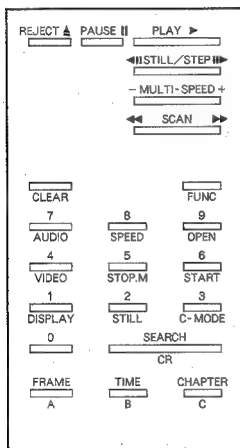
5. SERVICE MODE

- As to using the service mode, refer to the operating instructions (pages 24 - 28).

And also as to the cord table of the service mode, refer to the operating instructions (pages 20 - 23).

- Shows the function table of the remote control (RU-V101) for service as follows. When operating the CD changer section directly, it is able to operate as shown in the below by connect the wired-remote control to the CD chager.

5.1 FUNCTION TABLE OF THE REMOTE CONTROL FOR SERVICE



*1	REJECT	: Spindle stop
*1	PAUSE	: Pause
*1	PLAY	: Play
*2	STILL/STEP	: Disc select
*2	STILL/STEP	: Disc return
*2	MULTI-SPEED +	: Test command
*2	MULTI-SPEED -	: Test command
*1	SCAN	: Scan fwd
*1	SCAN	: Scan rev
*1	CLEAR	: Clear
*2	FRAME	: Frame set
*2	TIME	: Time set
*2	CHAPTER	: Track set
*1	SEARCH	: Search
*1	10key	: Numerical input
	DISPLAY (FUNC + 1)	: no entry
	STILL (FUNC + 2)	: no entry
	C-MODE (FUNC + 3)	: no entry
	VIDEO (FUNC + 4)	: no entry
*1	STOP.M (FUNC + 5)	: Stop marker
*1	START (FUNC + 6)	: Start
	AUDIO (FUNC + 7)	: no entry
	SPEED (FUNC + 8)	: no entry
*1	OPEN (FUNC + 9)	: Magazine eject

*1 Normal function command
 *2 Function command is different from the LD-V530.
 Not marked No entry command

● Test command

- 0 + MULTI-SPEED (+, -) keys : LD-ON
 - 1 + MULTI-SPEED (+, -) keys : FOCUS IN
 - 2 + MULTI-SPEED (+, -) keys : Spindle kick
 - 3 + MULTI-SPEED (+, -) keys : Tracking and slider servo ON
 - 4 + MULTI-SPEED (+, -) keys : Slider fwd (500ms)
 - 5 + MULTI-SPEED (+, -) keys : Slider rev (500ms)
 - 6 + MULTI-SPEED (+, -) keys : Tracking and slider servo OFF
 - 7 + MULTI-SPEED (+, -) keys : Slider stop and spindle stop
 - 8 + MULTI-SPEED (+, -) keys : Slider stop and spindle stop
 - 9 + MULTI-SPEED (+, -) keys : LD-OFF
- } Stop by MULTI-SPEED (+, -) key

6. NOTES ON REPLACING THE LITHIUM BATTERY AND RAM (IC2 : HM62256LP-12)

- When replacing the Lithium battery (DEM1001) or the RAM (IC2 : HM62256LP-12) in the CONT unit of the commander block, clear RAM data in the following manner.

If the data is not cleared, a malfunction may occur.

● How to clear

☐ A If the accessory wired-remote control of the CJ-V50A is existed, insert the wired-remote control (accessory of the CJ-V50A) to the mini DIN connector (4P) on the rear panel of the commander.

☐ B If the accessory wired-remote control of the CJ-V50A is not existed, connect four pins of the mini DIN connector (4P) on the RMJB unit to the chassis (GND).

1. Set the power switch to OFF and all the function switches of the commander block to ON.
2. While simultaneously pressing four keys, the volume + and - keys and the cancel A and II keys on the remote control unit, set the power switch to ON. A buzzer sounds in a few seconds, indicating that the clear operation is completed.

(Note : An error may occur if you set the power switch to OFF while pressing these four keys.)

When the data is cleared, the rate settings return to their default values and all other data become 0. Be careful when performing this operation as it sets even the non-resettable data all to 0.

Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
ARP2122

COMPACT DISC JUKEBOX

CJ-V50 PD-MV55

• Refer to the service manual (1) ARP2121, CJ-V50.

- This manual is applicable to the CJ-V50/HEM and PD-MV55/WEM types.
- PD-MV55/WEM type is a optional CD player of the CJ-V50/HEM type.
- PD-MV55/WEM type is the same as the built-in CD player of the CJ-V50/HEM type except packing and accessory parts.
- Ce manuel pour le service comprend les explications de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC (EUROPE) N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
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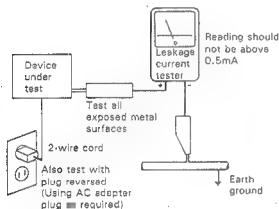
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Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire. The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

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(FOR EUROPEAN MODEL ONLY)

VARO!

AVATTAESSA JA SUOJALUKITUS
OHITETTAESSA OLET ALTITINA
NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.
ÄLÄ KATSO SÄTEESEEN.

ADVARSEL:

USYNUJ LASERSTRÅLING VED ÅBNING
NÅR SIKKERHEDSAFBRYDERE ER UDE AF
FUNKTION UNDGÅ UDSÆTTELSE FOR
STRÅLING

VARNING!

OSYNUJ LASERSTRÅLING NÅR DENNA
DEL ÄR ÖPPNAD OCH SPÄRREN
ÄR URKOPPLAD. BETRÄKTA EJ STRÅLEN.



LASER
Kuva 1
Lasersäteilyn
varoituserkki

WARNING!

DEVICE INCLUDES LASER DIODE WHICH
EMITS INVISIBLE INFRARED RADIATION
WHICH IS DANGEROUS TO EYES. THERE IS
A WARNING SIGN ACCORDING TO PICTURE
1 INSIDE THE DEVICE CLOSE TO THE LASER
DIODE.



LASER
Picture 1
Warning sign for
laser radiation

IMPORTANT

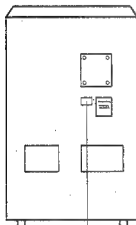
THIS PIONEER APPARATUS CONTAINS
LASER OF HIGHER CLASS THAN 1.
SERVICING OPERATION OF THE APPARATUS
SHOULD BE DONE BY A SPECIALLY
INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LABEL CHECK

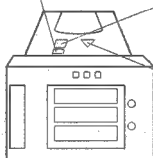
• MAIN SECTION (REAR SIDE)



VARO!
Avatessa ja suojalukitus ohitetta-
essa olet alttina näkymättömälle
lasersäteilylle. Älä katso silmiesi-
seen.
Osyनुj laserstråling når denna del
är öppnad och spårren är urkopplad.
Betrakta ej strålen.
PWC1232

CAUTION
INVISIBLE LASER
RADIATION WHEN OPEN,
AVOID EXPOSURE
TO BEAM
DPR1318

WEM type



ADVARSEL
USYNUJ LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAF-
BRYDERE ER UDE AF FUNKTION
UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING!
OSYNUJ LASERSTRÅLING NÅR DENNA
DEL ÄR ÖPPNAD OCH SPÄRREN
ÄR URKOPPLAD. BETRÄKTA EJ STRÅLEN.
PWC1232



WEM type

• CD SECTION
(REMOVING CONDITION
OF THE BONNET COVER)

CLASS 1
LASER PRODUCT
VW. 328

HEM type

Additional Laser Caution

1. The player microcomputer checks the inserting condition of magazines A, B and C by using the combined signals of the SENS1 (S804), SENS2 (S805), SENS3 (S806), LOCK1 (S801), LOCK2 (S802) and LOCK3 (S803) switches. If after these three magazines are fully inserted that commands from the control microcomputer are accepted. The laser diode is turned ON for illumination by outputting the laser diode ON signal from the control microcomputer when the CLAMP switch (S1001) (DSK1001), which signals that the tray is to be pulled from the magazine and detects clamping condition, is set to ON and the player receives the "rising command" in the disc clamping condition. If no disc is available, it turns OFF after 20 seconds. The illuminated laser diode goes out when receiving "Reject command", "disc change command" or a "magazine eject command". The laser diode continues to oscillate when pin ② of CXA1081S (IC1) is connected to GND or to pin ③.
2. If the fault condition described in 1 is induced with the cover open and with the servo mechanism block removed to be turned over, close viewing of the objective lens with the naked eye will cause exposure to a class 1 or higher laser beam.

2. EXPLODED VIEWS AND PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "©" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

2.1 MAIN SECTION

2.1.1 EXTERIOR (1)

Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	DAH1507	Sign board (upper)		40	SNH1018	Sash
	2	DAH1380	Sign board (under)		41	SNH1017	Sash
	3	DAH1183	Coin-return lever sheet A		42	SEB1072	Cushion
	4	DAH1443	Ornament sheet		43	SEW1014	Safety belt
	5	SBA-194	Screw		44	SEB1068	Packing
	6	DAH1431	Key sheet		45	SDF1013	Barth lug assembly
	7	DNK1235	Key knob A		46	SNA1233	Frame
	8	DNK1214	Key knob B		47	FMB50P180FZK	Screw
	9	DAH1432	Key sheet (B)		48	DEL-110	Fluorescent lamp
	10	CWC31P200FZK	Screw		49	SLH1050	Rail assembly
	11	SNB1035	Door stopper		50	CWC35P200FZK	Screw
	12	RWC31P200FUC	Screw		101		DS holder assembly
	13	SNB1037	Hook holder		102		Key plate (B)
	14	SNX1034	Magnet catch		103		Shield packing (B)
	15	DNK1618	Coin-return door		104		Coin guide (B)
	16	DNK1618	Coin-return hole cover		105		Coin-return tray
	17	DNH1335	Cover of the money storage		106		Coin box assembly
	18	DNF1258	Reinforced plate		107		Stopper B
	19	10-757A	Speaker (Mid-range)		108		Reflection plate
	20	D66AP45-52L	Speaker (Tweeter)		109		Socket holder (S)
	21	SMG1169	Grill		110		Socket holder (L)
	22	YE30FUC	E ring $\phi 3$		111		Lamp bracket (L)
	23	DEC1224	Illumination sheet		112		Lamp bracket (R)
Δ	24	DKK1008	Fluorescent lamp socket (upper)		113		CB cushion
					114		Nut
					115		Cabinet
	25	DEC1220	Bushing				
	26	DEC-176	Plastic rivet		116		Punching net
	27	PMH30P060FMC	Screw		117		Badge
	28	TNC35P140FZK	Screw		118		Tape A
	29	SBA1081	Screw		119		Grill board
					120		Stopper A
	30	RWC35P180FZK	Screw				
	31	IPZ30P060FMC	Screw				
	32	BBZ30P060FMC	Screw				
	33	DBA1007	Screw (3.5 \times 12mm)				
	34	FMB40P080FMC	Screw				
	35	IPZ30P080FMC	Screw				
	36	FMA60P100FMC	Screw				
	37	SNB1039	Catch plate L				
	38	SNB1040	Catch plate R				
	39	SNB1041	Door hinge				

Parts List

Mark	No.	Part No.	Description
	1	DNK1627	Plate
	2	SNA1235	Rail
	3	25-803A	Speaker (Woofer)
	4	DSF1001	Micro switch
	5	DBH1125	O spring
	6	SNA1220	Reinforced plate
	7	DXB1022	Caster A
	8	DXB1023	Caster B
	9	YE20FUC	E ring $\phi 2$
	10	BSZ30P060FMC	Screw
	11	AMZ40P080FMC	Screw
	12	TNC35P140FZK	Screw
	13	PMH20P100FMC	Screw
	14	DBA1007	Screw (3.5 \times 12mm)
	15	SBA1068	Screw
	16	PMB50P300FMC	Screw
	17	SBA-184	Screw
Δ	18	DDE1034	Connection cord
	19	FDE1065	Cord with pin plug
	20	DEC1184	Shell clip
	21	YE30FUC	E ring $\phi 3$
	22	SNA1224	Earth plate
	101		Top door stay
	102		MB fixing plate
	103		Door SW cam
	104		Door switch holder assembly
	105		* * * * *
	106		Cabinet
	107		Airway cover
	108		Earth lug assembly
	109		Cord clasper
	110		R. pin
	111		Magazine assembly
	112		Tape B

2.1.3 EXTERIOR (3)

Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
△	1	DTH1106	Ballast		101		LAMP
△	2	DKK1001	Glow lamp socket		102		Stay A
⊙	3	SWN1219	Network assembly		103		Glow lamp
△	4	REK-103	Fuse (2A, FUB01)		104		CA holder A
	5	10-757A	Speaker (Mid-range)		105		Hinge holder
	6	SNB1038	Speaker holder		106		Rear plate
	7	DXB1193	Hinge		107		CH lever B
	8	DBK1015	Accepter plate spring		108		CA holder C assembly
	9	BBZ30P060FMC	Screw		109		Edge guard (B)
	10	DBA1007	Screw (3.5 × 12mm)		110		Coin guide cover
	11	TNC35P140FZK	Screw		111		Insertion guide
	12	AYC30P250FMC	Screw		112		Cord clasper
	13	AMZ30P080FZK	Screw		113		HL holder assembly
	14	BSZ40P060FZK	Screw		114		CH lever assembly A
	15	BBZ40P080FMC	Screw		115		Bill holder (F)
	16	BBZ30P080FMC	Screw		116		Bill holder (L)
	17	PEZ30P120FMC	Screw		117		Bill holder (RE)
	18	DBH1037	CA spring		118		Bill holder (R)
	19	YE30FUC	B ring φ3		119		DS shaft A
	20	IPZ30P080FMC	Screw		120		DS base
	21	FMB40P080FMC	Screw		121		Door stay A
	22	AMZ40P080FMC	Screw		122		Cord clasper
	23	SNC1078	Protection net		123		DS shaft B
	24	DND1022	Door stay B		124		Tape C
					125		Tape D
					126		Coin guide (C)
					127		Ornament sash
					128		Shield packing (A)
					129		Cabinet
					130		Coin guide (D)
					131		Key plate (A)
					132		Insulation sheet

Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	DNK1633	Shaft holder		39	BBZ30P030FMC	Screw
	2	DNF1257	Corner edge		40	PMH30P030FMC	Screw
	3	DNK1629	Menu cap (L)		41	SMZ30H230FMC	Screw
	4	DNK1630	Menu cap (M)		42	BMZ36P030FMC	Screw
	5	DEC1252	Menu sheet		43	ZMD26H030FBT	Screw
	6	DNK1621	Worm wheel		44	BPZ30P080FCU	Screw
	7	DNK1626	Side ornament plate		45	AMZ30P030FZK	Screw
	8	DEC1250	Side ornament plate sheet (L)		46	ZMD40H080FBT	Screw
	9	DEC1251	Side ornament plate sheet (R)		47	DNA1070	Side frame (L)
	10	DNK1627	Ornament plate		48	DNA1071	Side frame (R)
	11	DEC1224	Illumination sheet		49	DEL-110	Fluorescent lamp
△	12	DKK1006	Fluorescent lamp socket (upper L)	⊗	50	DWX1110	POSS
△	13	DKK1007	Fluorescent lamp socket (under L)	⊗	51	DWX1109	ROTA
				⊗	52	DWX1132	CNTB
	14	DEC1220	Bushing		101		* * * * *
	15	DXB-108	Bearing		102		* * * * *
	16	DBH1107	Tension spring (under)		103		Top cover
	17	DMS1012	Synchro belt		104		* * * * *
	18	DNK1622	Center pulley		105		* * * * *
	19	DNK1623	Synchro pulley		106		Back frame
	20	DBH1108	Adjustment spring		107		* * * * *
	21	DEC-176	Plastic rivet		108		Reflection plate
	22	VBK-002	Speed nut		109		Socket holder (L)
	23	DNK1632	Menu cap (U)		110		Socket holder (S)
	24	DNK1628	Menu		111		Lamp plate (L)
	25	DLA1300	Worm gear		112		Lamp plate (R)
	26	DNK1620	Pulley		113		Tension plate (under)
	27	DNK1624	Worm shaft holder		114		Under frame
	28	DMS1006	S2M timing belt		115		Adjustment plate
	29	DXB1160	Encoder disc assembly		116		Cord clasper
	30	DXM1033	Motor		117		Triangle frame (L)
	31	DXX1368	Motor assembly		118		Triangle frame (S)
	32	CEANP010M50	C702.C704		119		* * * * *
	33	CGDYX104M25	C701.C703		120		Motor holder
	34	WA42D080D050	Washer		121		Sensor holder
	35	BBZ30P030FZK	Screw		122		Motor pulley
	36	BBZ40P030FMC	Screw				
	37	ZMD40H080FBT	Screw				
	38	SMZ30H120FBT	Screw				

2.1.5 AMP SECTION

Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
⊙	1	DWR1078	POWB		101		ACIN
⊙	2	DWK1013	PREB		102		WBFT
⊙	3	DWH1007	PAMP		103		PSWB
△	4	REK-100	Fuse		104		* * * * *
			(1A, FU1,FU6,FU701,FU702)		105		SPTB
△	5	REK-102	Fuse (1.6A, FU3,FU4)				
					106		IOJB
△	6	REK-104	Fuse (2.5A, FU5)		107		Side frame L
△	7	DTT1048	Main power transformer		108		Side frame R
△	8	AKP-502	3P AC outlet		109		Center frame
△	9	DDG1041	AC power cord		110		Front panel A
△	10	CM-22B	Strain relief				
					111		Protector
	11	RAC1210	VR knob A		112		Wire clip
	12	RAC1211	VR knob B		113		Transformer frame
	13	DLA-177	Staddle		114		Cord clamber
	14	DAC1107	Push knob		115		Rear panel A
	15	BBZ30P060FMC	Screw				
					116		P.C.B. stopper
	16	BBZ30P080FZK	Screw		117		Heat sink
	17	BBZ40P060FMC	Screw		118		PF holder
	18	BBZ30P140FMC	Screw		119		Connector assembly
	19	FMB40P080FMC	Screw		120		Connector assembly
	20	AMZ30P060FZK	Screw				
					121		Earth terminal
△	21	DTT1049	Sub power transformer		122		PSEL
⊙	22	DWS1107	ASEL		123		* * * * *
	23	DNK1893	Terminal cover		124		Terminal holder
⊙	24	DWK1014	BGMB		125		P.C.B holder B
					126		Spacer

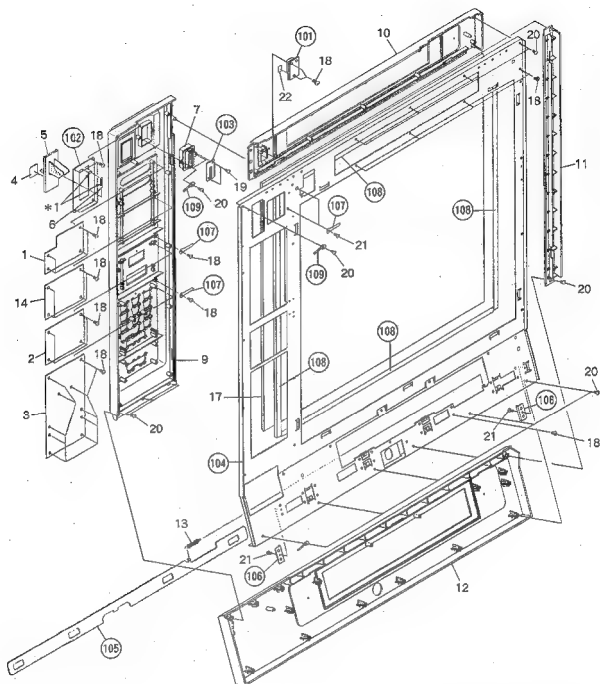
Parts List

Mark	No.	Part No.	Description
	1	
△	2	DEM1001	Lithium batteries
	3	DAW1011	Electromagnetic counter
	4	DAC-116	Push button
	5	
	6	BBZ30P080FZK	Screw
	7	BBZ30P060FMC	Screw
	8	FMB30P050FCU	Screw
	101		RSSB
	102		CRJB
	103		OPER
	104		WBJB
	105		RMJB
	106		Front panel B
	107		P.C.B holder A
	108		Counter holder
	109		P.C.B. holder
	110		Side frame L
	111		Side frame R
	112		Reinforced frame
	113		Rear panel II
	114		Cushion
	115		CONT
	116		Bolt
	117		Cord clasper E
	118		Cord clasper
	119		P.C.B holder C
	120		Terminal holder
	121		Terminal holder
	122		Terminal holder C

2.1.7 TOP DOOR SECTION

Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
⊙	1	DWG1128	MESS		101		SENS
⊙	2	DWG1129	DISP		102		Coin-return lever fixing plate
⊙	3	DWS1101	KEYB				Coin slit
	4	DAH1184	Coin-return lever sheet ■		103		Top door base
	5	DAD1001	Coin-return lever		104		Top door lock plate
					105		
	6	DBH1033	Coin-return lever spring				
	7	DNS1044	Coin insertion hole		106		Lock plate stopper
		■	* * * * *		107		Cord clamber
	9	DNK1609	Operation panel		108		Glass sash
	10	DNK1610	Top door panel (upper)		109		Earth lug assembly
	11	DNK1612	Top door panel (side)				
	12	DNK1737	Top door panel (under)				
	13	DBH1034	Lock spring				
⊙	14	DWX1108	BRAN				
	15		* * * * *				
	16		* * * * *				
△	17	DAN1010	Menu glass				
	18	BPZ30P080FCU	Screw				
	19	FMH30P120PMC	Screw				
	20	IPZ30P080PMC	Screw				
	21	BBZ30P080PMC	Screw				
	22	DEC1856	IR filter				



*1: Silicon Adhesive GYL-014

2.2 CD SECTION

2.2.1 EXTERIOR

Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	DNE1083	Bonnet		101		Insulation plate B
	2	DXX1367	Bonnet assembly		102		HRMB
	3	DRW1151	Label A		103		EKEY
	4	DNB1012	Front panel		104		RMIB
	5	VCX-006	Hour meter		105		DIAK
	6	DAC1196	Push button		106		PIAK
	7	DTT1047	Power transformer (T201)		107		Chassis
	8	REK-094	Fuse (250mA, FU201)		108		Upper base
	9	DWX1155	ANLG		109		Under base
	10	DEC-176	Plastic rivet		110		Slipping angle
	11	RNH-184	Cord clasper		111		Jack holder
	12	DLA1336	Collar		112		Insulation sheet
	13	DNK1179	SP holder				
	14	DNF1075	Plate B				
	15	DBH1105	Spring				
	16	DDG1038	AC power cord				
	17		*****				
	18	DLA1337	Lock shaft				
	19	DEB1123	Rubber washer				
	20	BBZ30P060FMC	Screw				
	21	PMZ30P040FMC	Screw				
	22	IFZ30P060FMC	Screw				
	23	AMZ30P080FMC	Screw				
	24	FMZ30P080FMC	Screw				
	25	FDZ30P060FMC	Screw				
	26	BBZ40P060FMC	Screw				
	27	AMZ40P250FMC	Screw				
	28	DDD1027	17P flexible cord				
	29	CM-22B	Strain relief				

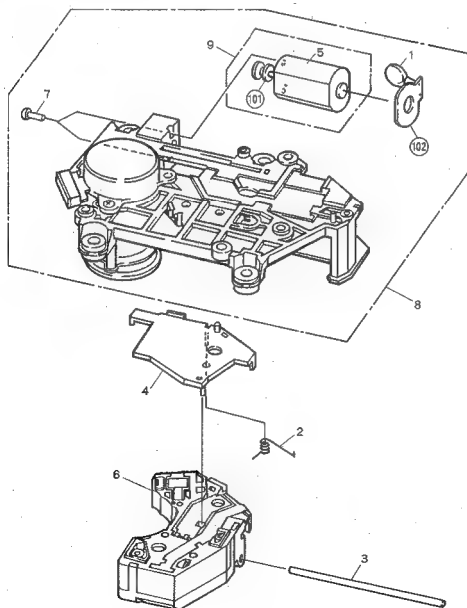
Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	DNK1566	Lock lever		51	BMZ26P120FMC	Screw
	2	DXP1008	Plunger		52	PCZ30P050FZK	Screw
	3	DBH1101	Lock spring		53	DBA1003	Link screw
	4	PBH1015	SM spring		54	PBA1002	Floating screw
	5	DBK1028	Spring		55	PBA-125	Screw
	6	REC1005	Damper assembly		56	WT26D047D050	Washer
	7	PBH-455	Eject spring		57	WT26D047D025	Washer
	8	DMS1011	Timing belt		58	WA31D054D050	Washer
	9	DNK1578	Timing pulley		59	WA31D054D025	Washer
	10	DNK1575	Gear E2		60	YE25PUC	E ring
	11	DSH1011	Slide switch		61	WT31D054D050	Washer
	12	PXM1002	Motor (SELECT, LOADING)		62	DXX1358	Select motor assembly
	13	DBH1100	Select spring		63	DXP1009	Solenoid
	14	DNK1579	Select lever		64	BMZ26P030FMC	Screw
	15	DBH1102	Sensor spring		65	WT31D054D025	Washer
	16	RNH-184	Cord clamper		66	ZMD26H040FBT	Screw
	17	DWX1118	DEGT		67	DXB1189	Servo mechanism assembly
	18	DEC1237	Sheet				
	19	FNW1110	Cam		101		MJSW
	20	FNW1111	Upper tray		102		Side guide L
					103		SM select A
	21	PED1001	Cushion A		104		Top guide
	22	DNK1561	Clamper holder B		105		Side guide R
	23	DNS1080	Synchro gear				
	24	DNK1577	Turn drive lever		106		Center guide
	25	DNK1574	Clamper cam		107		Eject lever
					108		SM select B
	26	PYY1025	Motor assembly		109		Bottom guide
	27	DNK1573	Clamper lever		110		Guide bar
	28	DSK1001	Lever switch(S1001,CLAMP)				
	29	DNK1569	Gear A		111		Gear EF
	30	DNK1570	Gear B		112		Gear angle
					113		Motor base
	31	DEB1104	Belt		114		Sensor holder
	32	PNW1096	Gear pulley		115		REJC
	33	PBH1016	Clamper spring T				
	34	DBH1120	Clamper spring B		116		Sensor plate
	35	DNK1572	Drive plate		117		Main chassis
					118		FREC
	36	DNK1571	Drive lever		119		Insulation plate A
	37	PBP-001	Steel ball #4		120		Card edge spacer
	38	DBH1103	Tension spring				
	39	DNK1568	Main gear		121		Corner post
	40	PNW1107	Clamper holder T		122		SENS
					123	
	41	PBP-009	Steel ball #3		124		Upper chassis
	42	PNW1857	Clamper		125		Rubber tube
	43	DLA1286	Roller				
	44	PBH1014	Floating rubber		126		Synchro shaft
	45	DEC-176	Plastic rivet		127		Sub chassis
					128		Hold plate
	46	BPZ20P080FZK	Screw		129		Link plate
	47	BPZ30P100FMC	Screw		130		Link L
	48	BSZ20P040FMC	Screw				
	49	PMZ20P030FMC	Screw		131		Link R
	50	PMZ20P060FMC	Screw		132		Motor pulley
					133		Motor pulley

2.2.3 SERVO MECHANISM SECTION

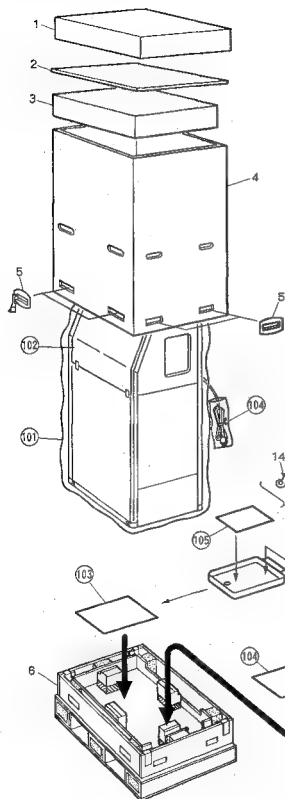
Parts List

Mark	No.	Part No.	Description
	1	CGDYX104M25	Semiconductive ceramic capacitor
	2	PEH1008	Drive spring
	3	PLA1004	Guide bar
	4	PNW1063	Carriage plate
	5	PXM1002	Motor
	6	PWY1009	Pickup assembly
	7	PMZ20P030FMC	Screw
	8	DXX1361	Spindle motor assembly
	9	PYY1025	Motor assembly
101			Motor pulley
102			Carriage M board



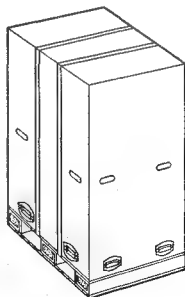
3. PACKING

3.1 MAIN SECTION



Parts List

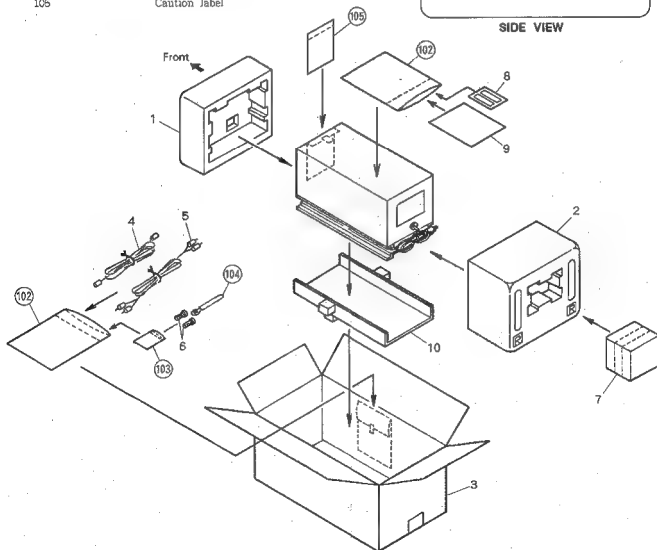
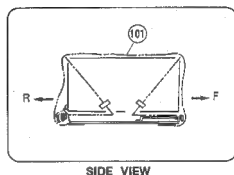
Mark	No.	Part No.	Description
	1	DEH1200	Packing cap
	2	SGK1366	Reinforced plate
	3	SHA1380	Pad assembly B
	4	DEH1252	Packing case
	5	AHG-204	PP joint
	6	SHA1413	Pad assembly A
	7	
	8	DRB1044	Operating instructions (English/French/German /Italian/Spanish)
	9	DEC1236	Menu number label
	10	DAH1442	Rate seal A
	11	DNH1335	Cover of the money storage
	12	DNF1256	Reinforced plate
	13	DAH1229	Coin sheet
	14	DNH1126	Lock release plate
	15	DXR1009	Remote control unit
	16	
	17	DBA1007	Screw
	101		Packing bag
	102		Packing sheet
	103		Vinyl bag
	104		Vinyl bag
	105		Vinyl bag
	106		Blind plate
	107		Cord clammer
	108		Cord clammer
	109		Battery UM-4



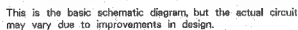
3.2 PACKING OF PD-MV55

Parts List

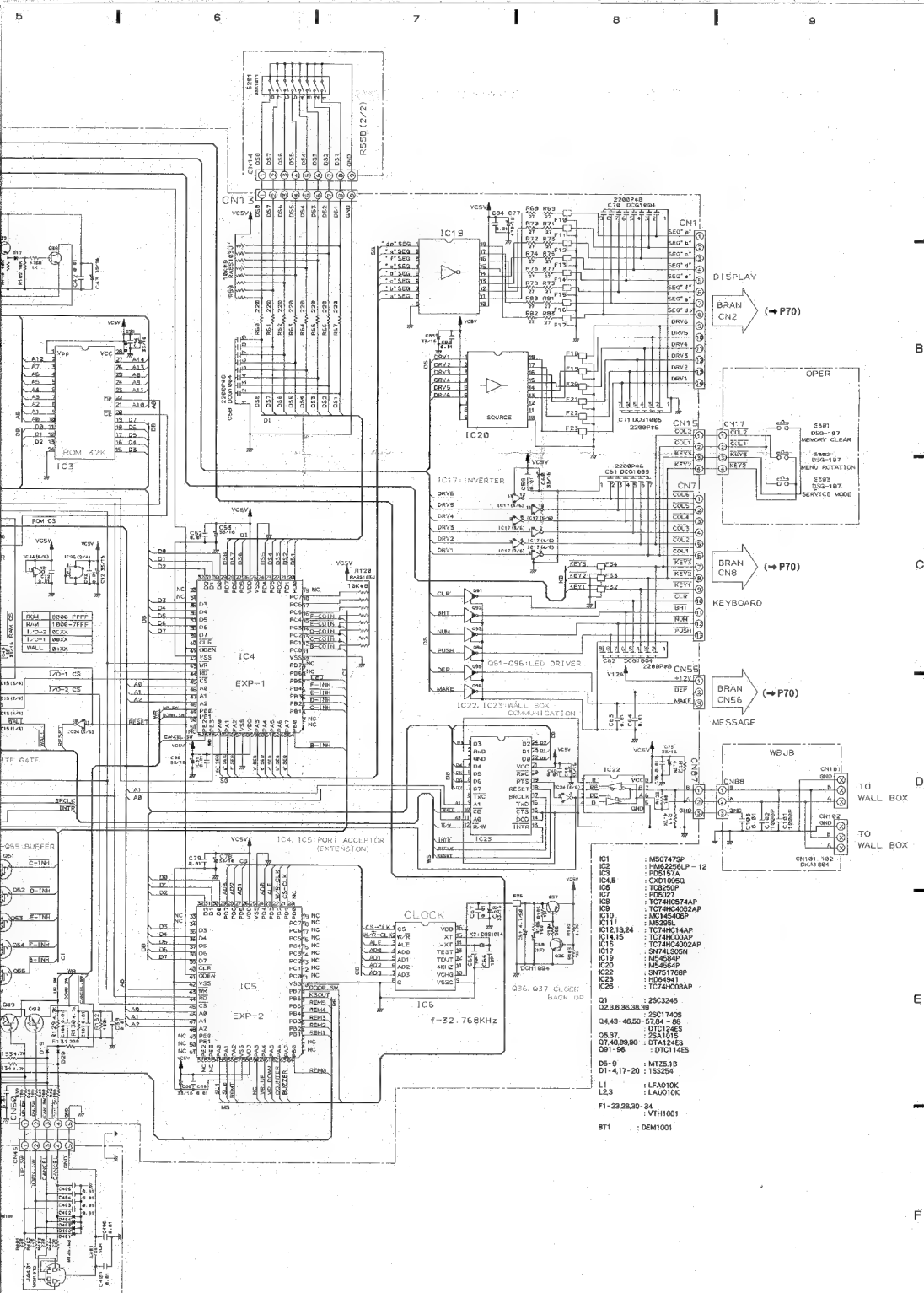
Mark	No.	Part No.	Description
	1	DHA1085	F pad
	2	DHA1087	R pad
	3	DHG1223	Packing case
	4	DDE1034	Connection cord
	5	FDE1065	Connection cord with pin plug
	6	AMZ40P080FMC	Screw
	7	DEG1164	Case
	8	DRW1156	Label B
	9	DRB1042	Operating instructions (English/ French/ German / Italian/ Spanish)
	10	DHC1015	Reinforcement plate
	101		Packing sheet
	102		Vinyl bag
	103		Vinyl bag
	104		Cord clasper
	105		Caution label



4.1.1 OVERALL CONNECTION DIAGRAM



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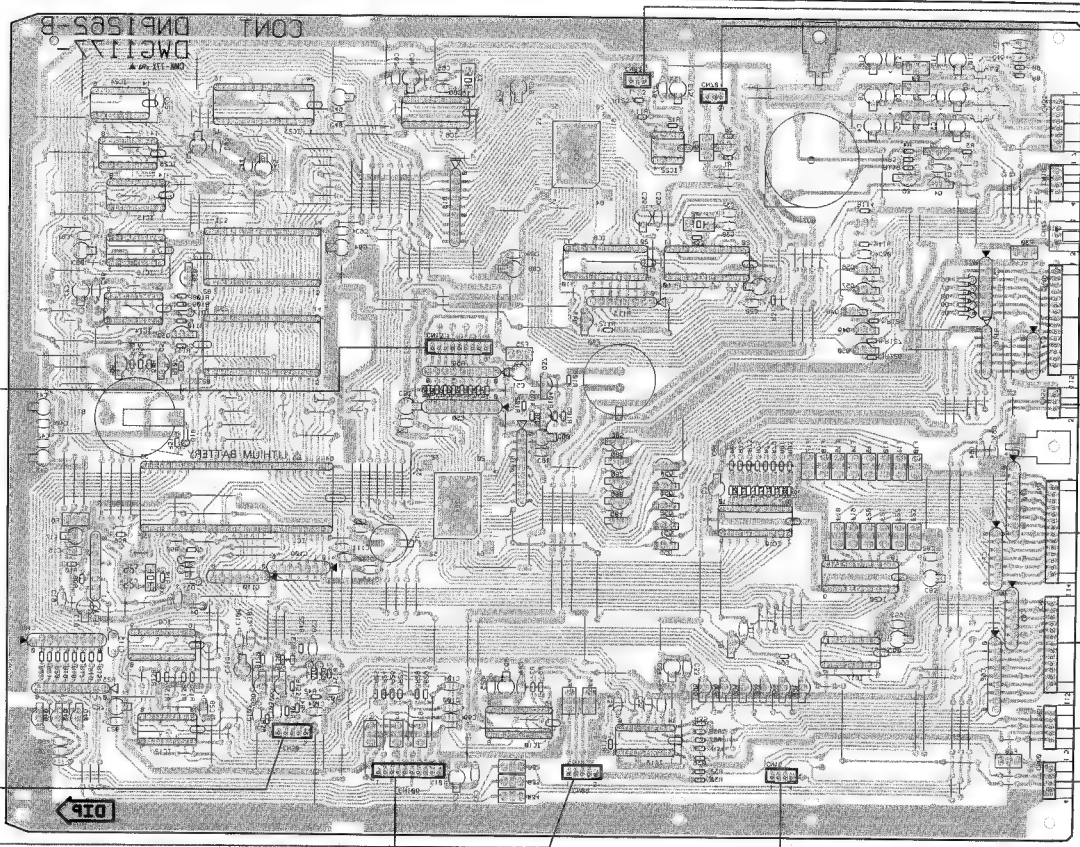
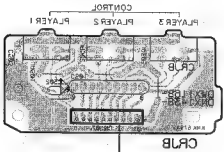
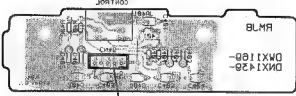
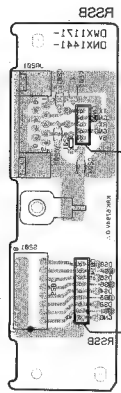
This P.C.B. connection diagram is viewed from the foil side.

A

B

C

D



CONT

COUNTER

POWER

POWER

COIN

ACCEPTOR

BRAIN

BRAIN

BRAIN

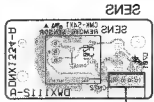
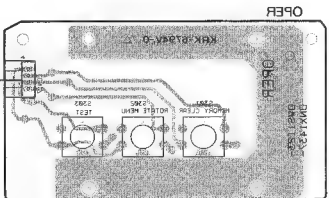
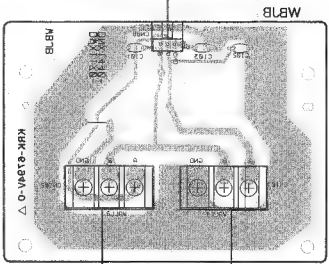
ROTARY

A

B

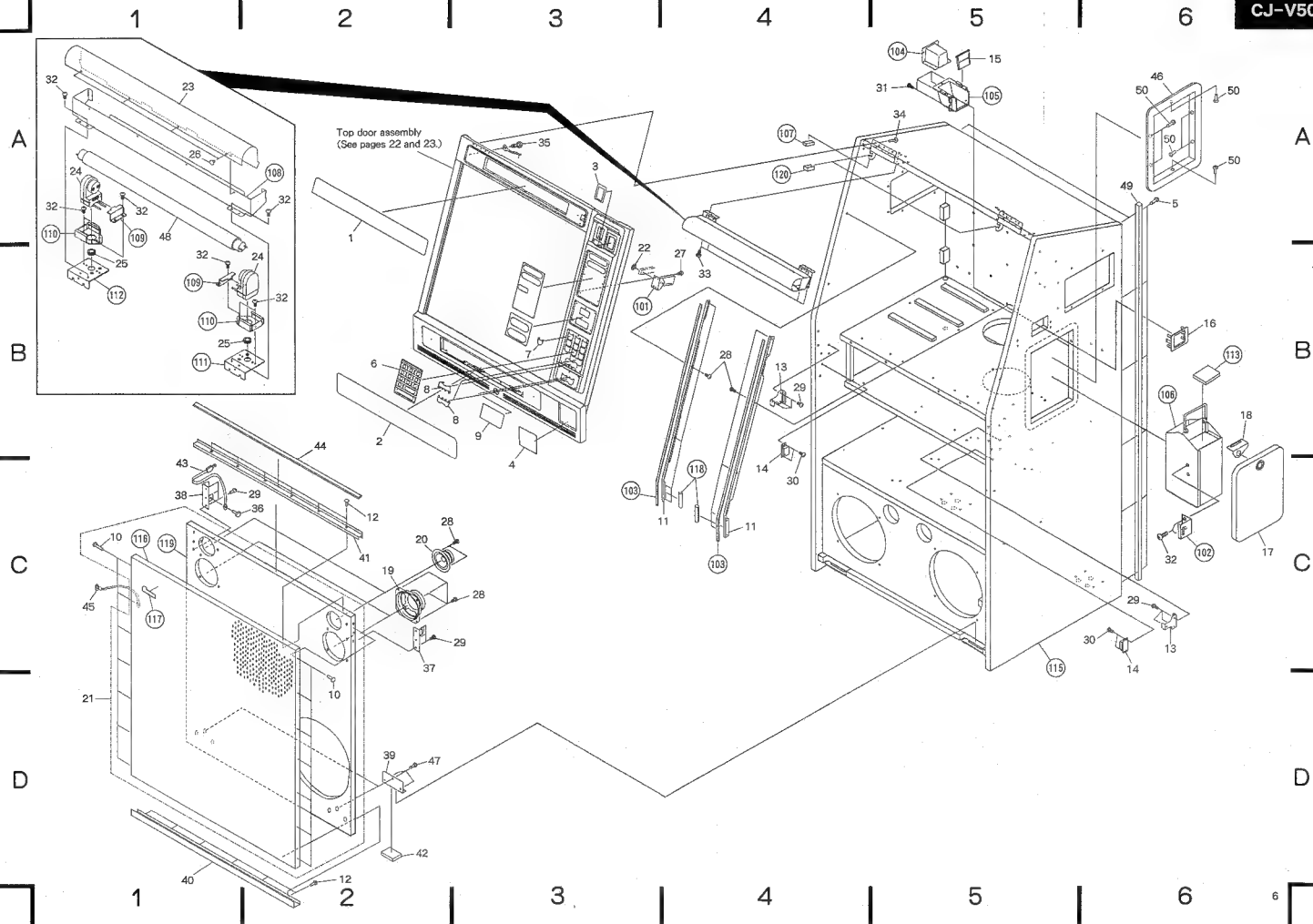
C

D



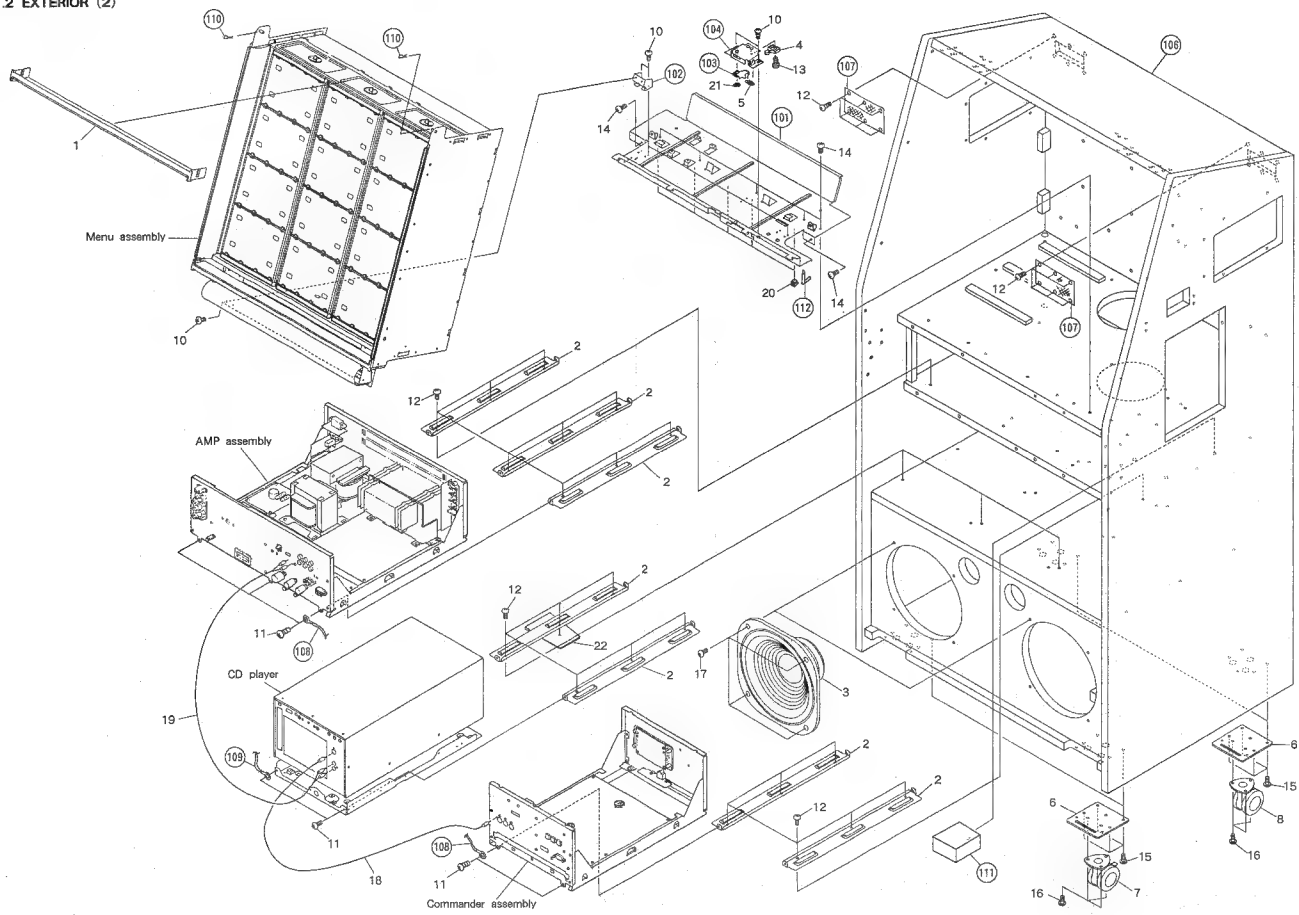
COUNTER
CNS4
CNS5
CNS6
CNS7
CNS8
CNS9
CNS10
CNS11
CNS12
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CNS16
CNS17
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CNS99
CNS100

CONT
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CNS102
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CNS191
CNS192
CNS193
CNS194
CNS195
CNS196
CNS197
CNS198
CNS199
CNS200



2.1.2 EXTERIOR (2)

A
B
C
D



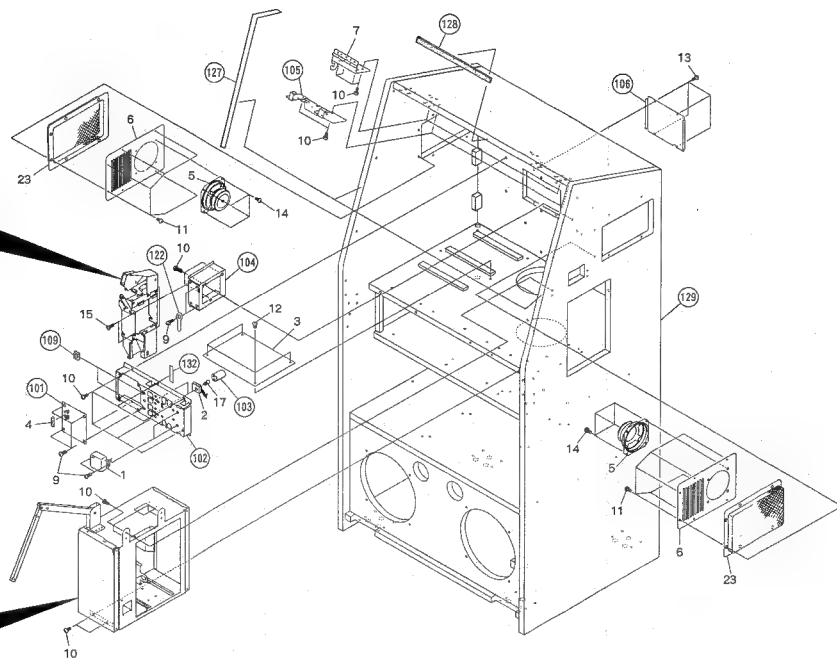
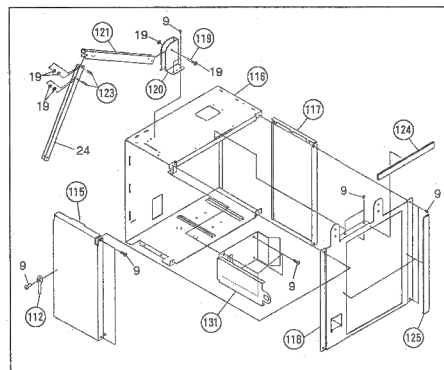
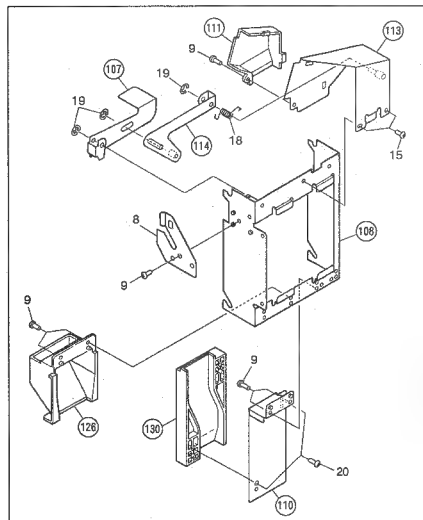
A
B
C
D

A

B

C

D



A

B

C

D

2.1.4 MENU BOARD SECTION

A

B

C

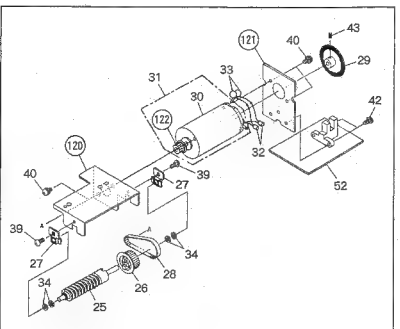
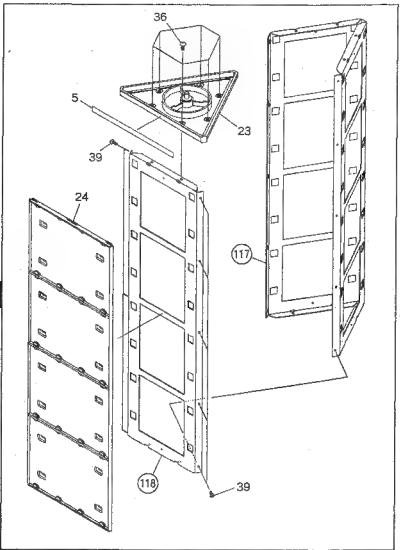
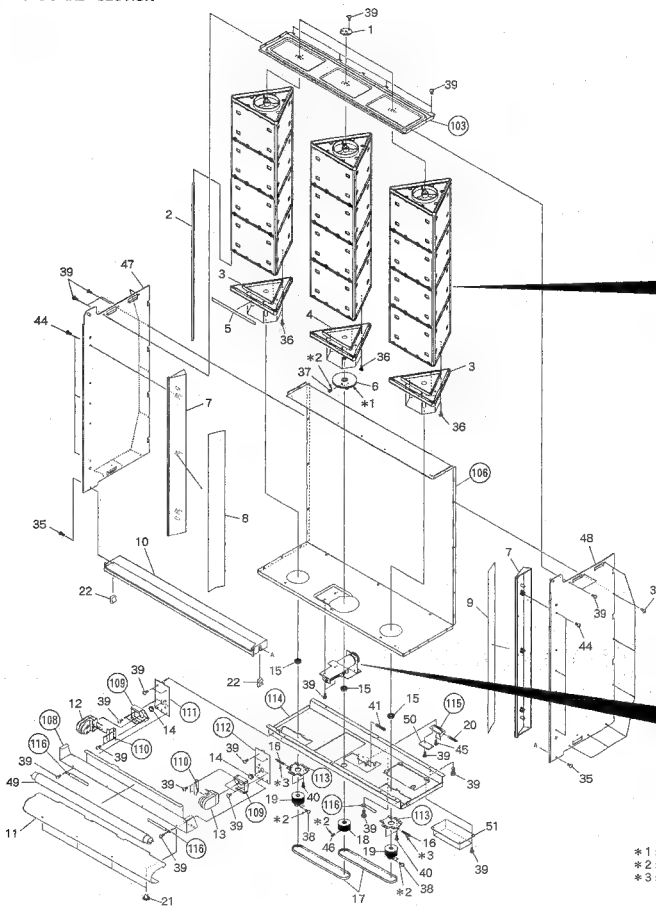
D

A

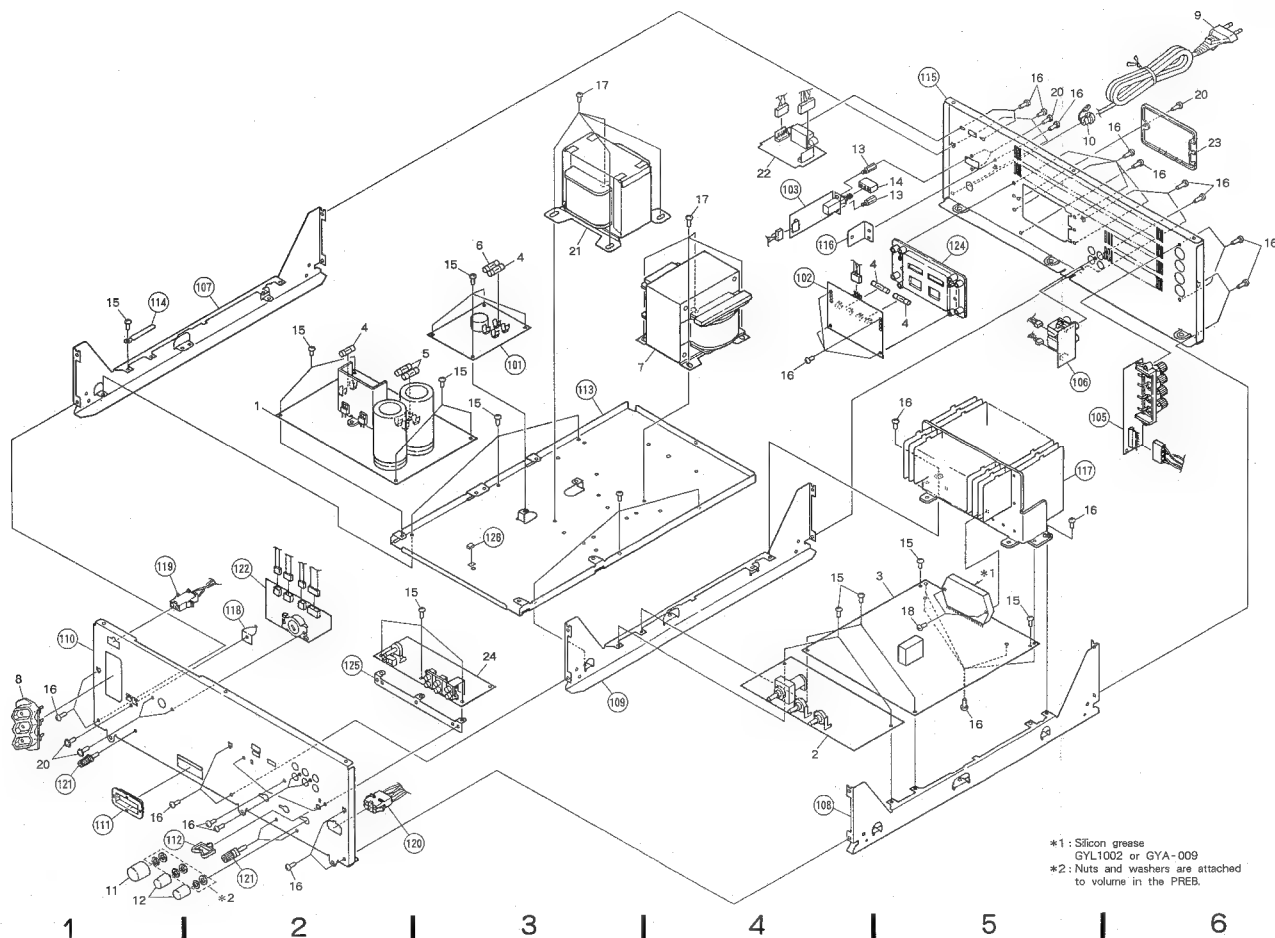
B

C

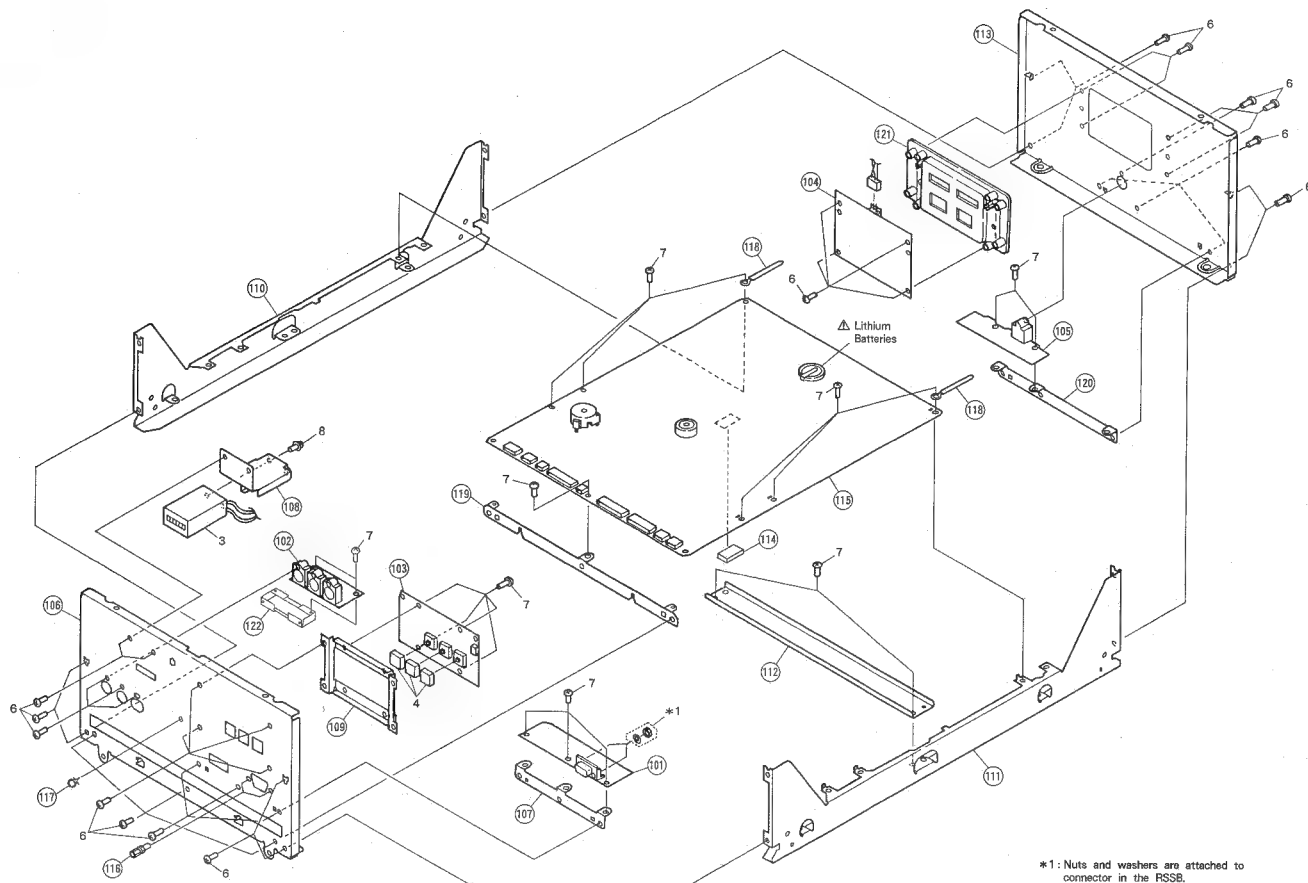
D



- * 1 : Froil GYA-008
- * 2 : Screw locking point
- * 3 : Silicon grease GYL1002 or GYA-009



2.1.6 COMMANDER SECTION



*1: Nuts and washers are attached to connector in the RSSB.



27

1

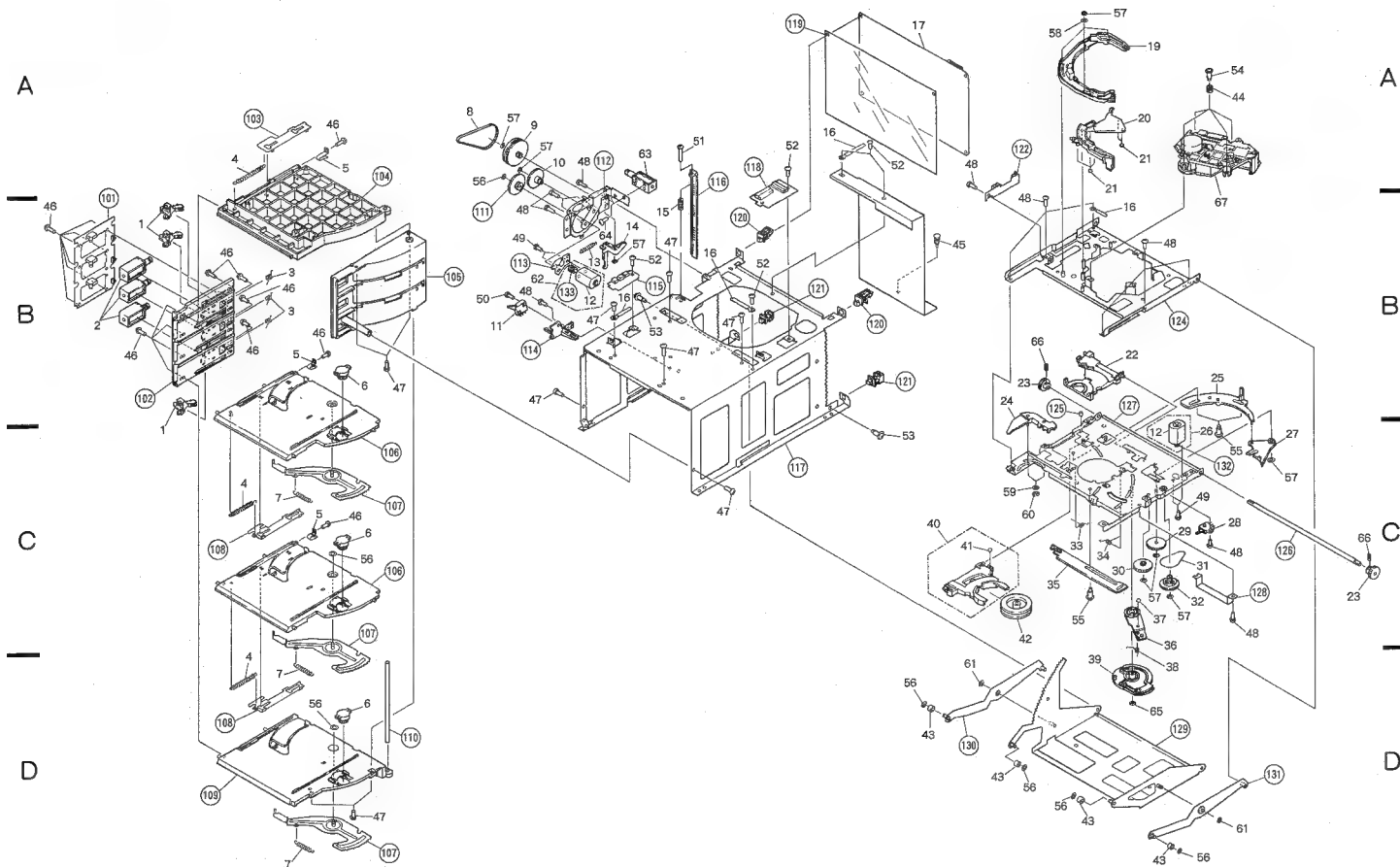
2

3

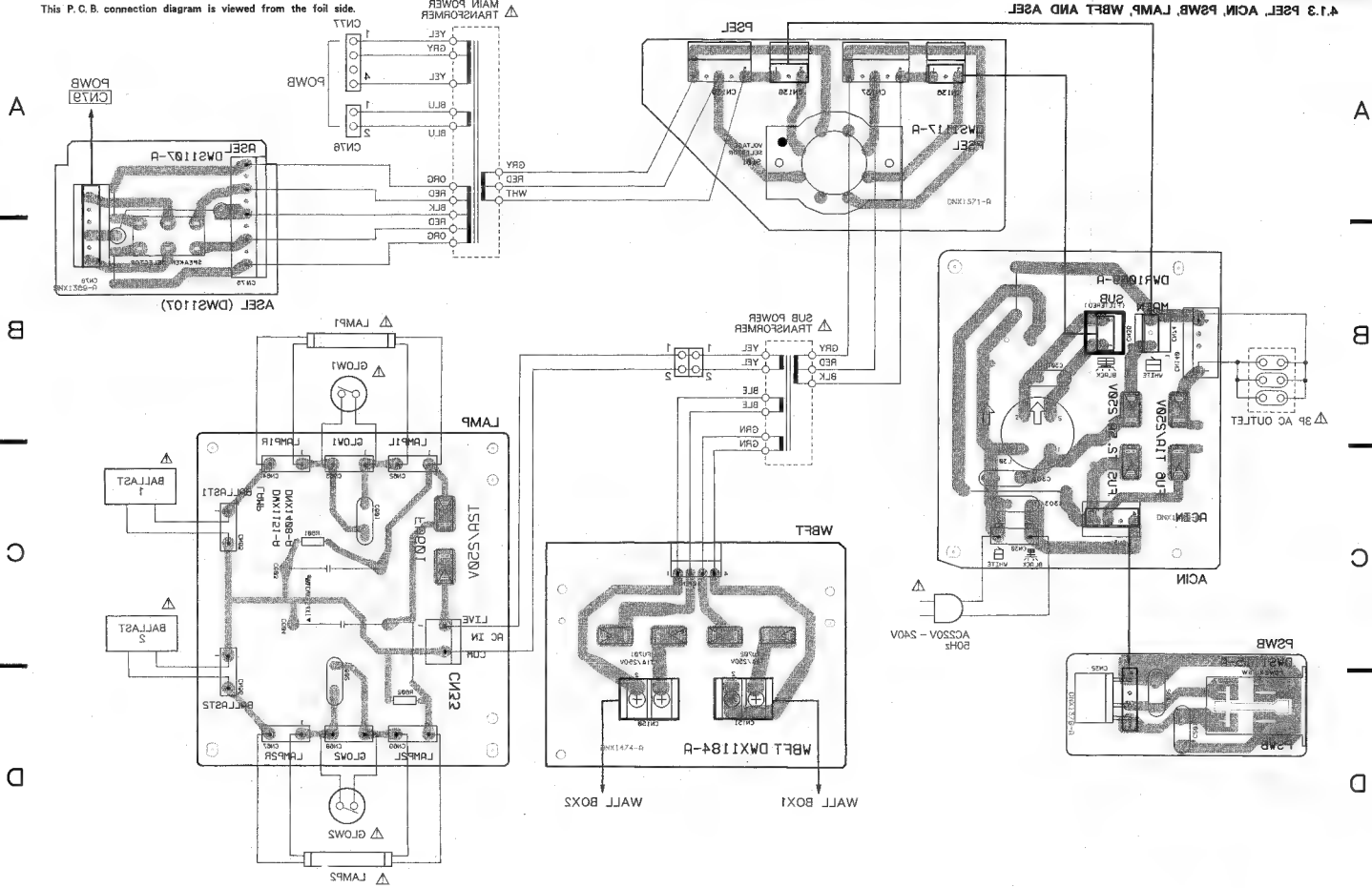
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5

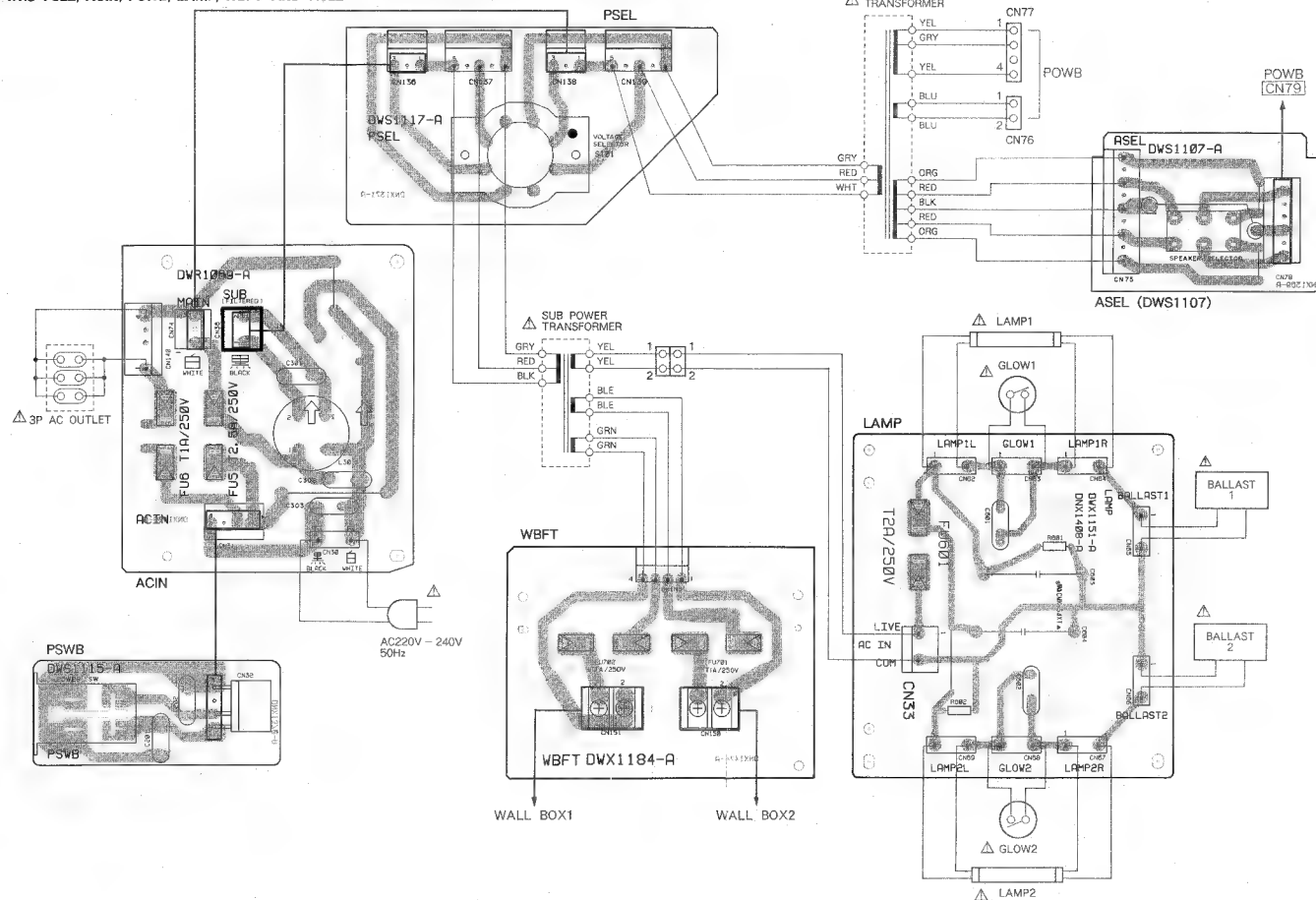
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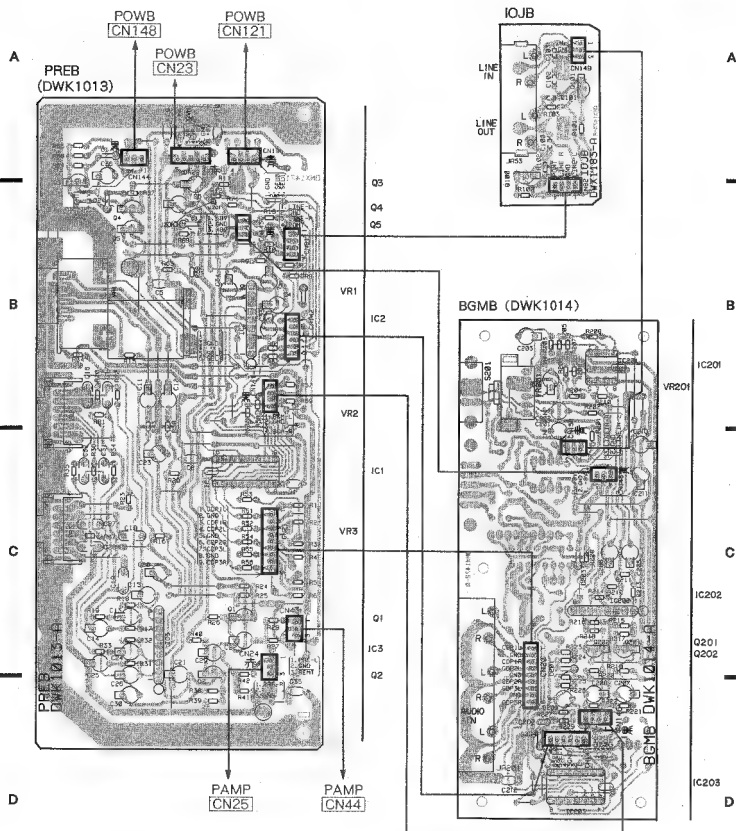
4.1.3 PSEL, ACIN, PSWB, LAMP, WBFT AND ASFL



4.1.3 PSEL, ACIN, PSWB, LAMP, WBFT AND ASEL



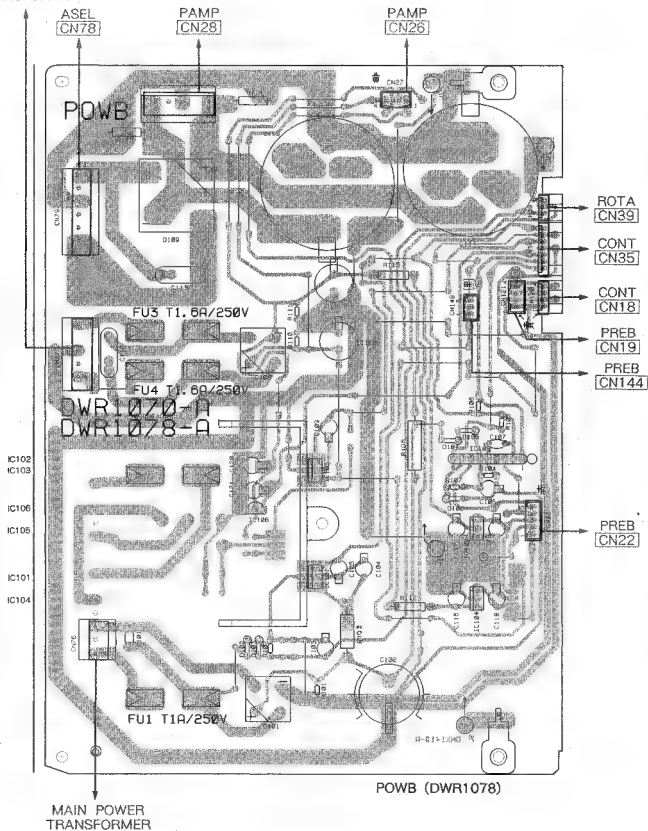




1



4.1.5 POWB

MAIN POWER
TRANSFORMER

A

B

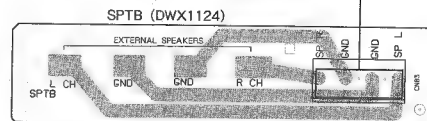
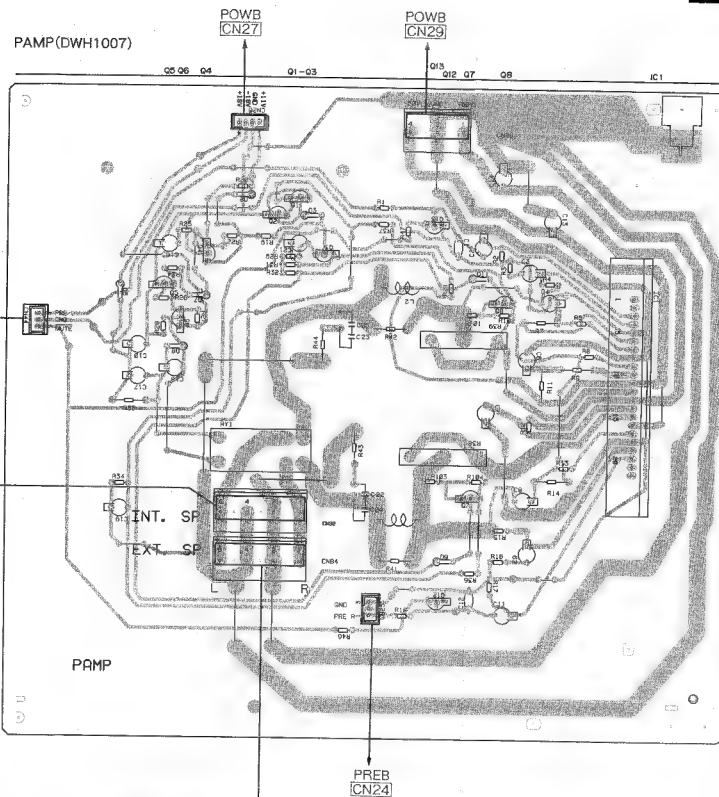
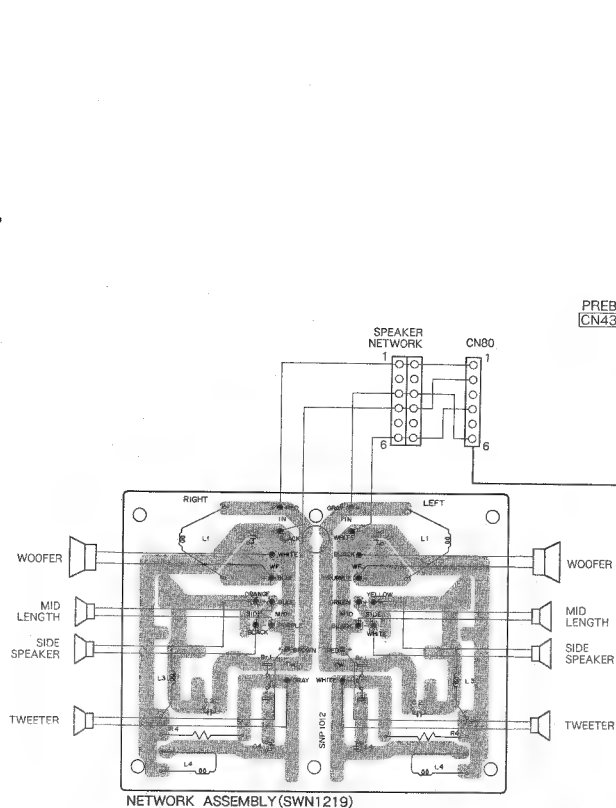
C

D

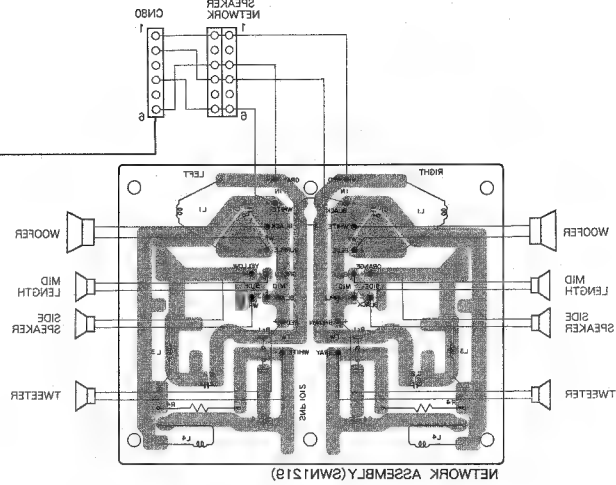
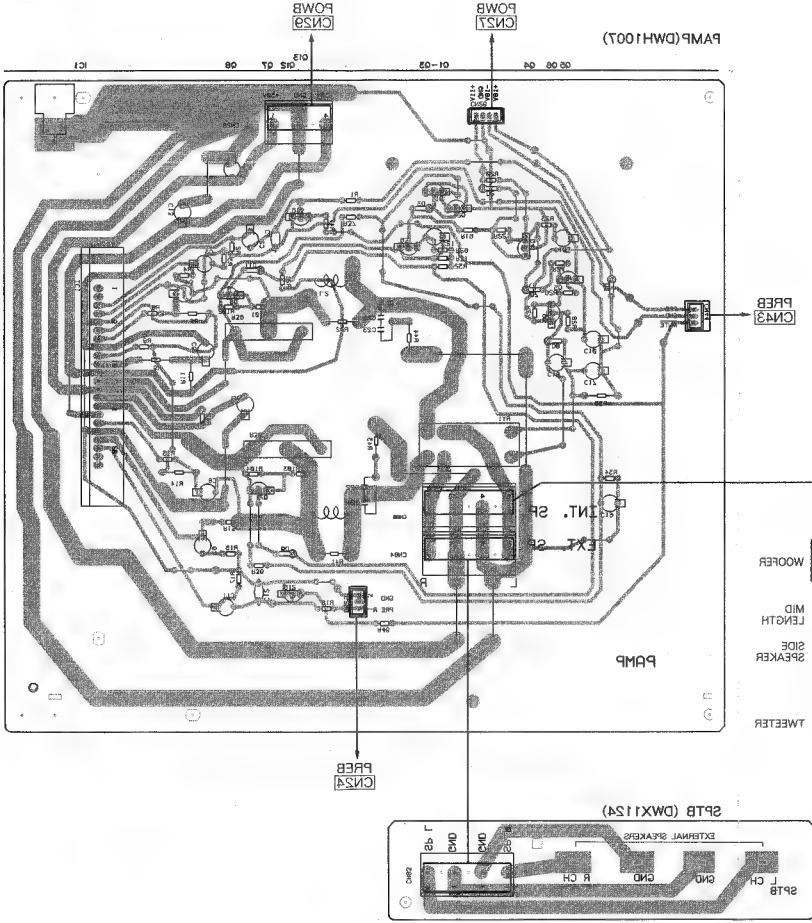
1



D

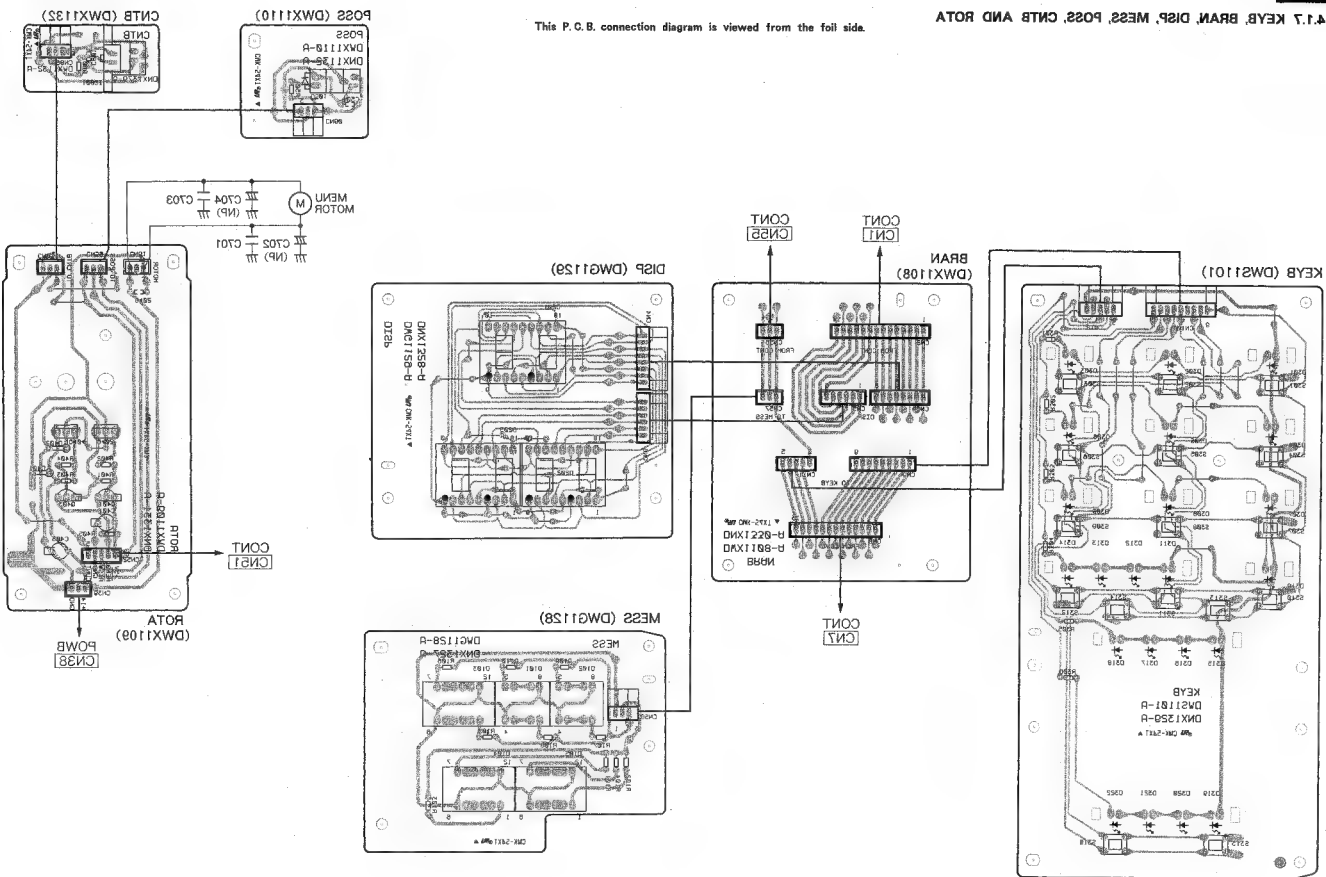


This P.C.B. connection diagram is viewed from the foil side.



4.1.7 KEYB, BRAN, DISP, POST, CNTB AND ROTAT

This P.C.B. connection diagram is viewed from the foil side.



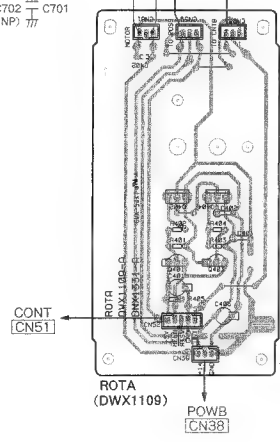
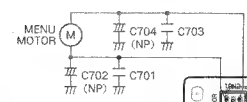
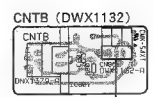
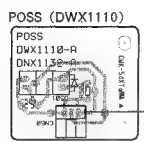
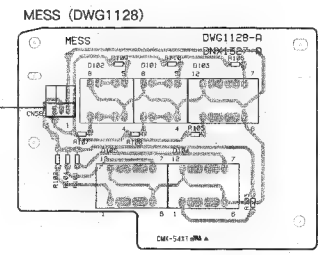
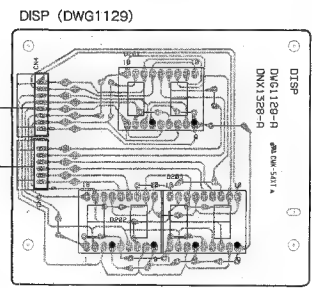
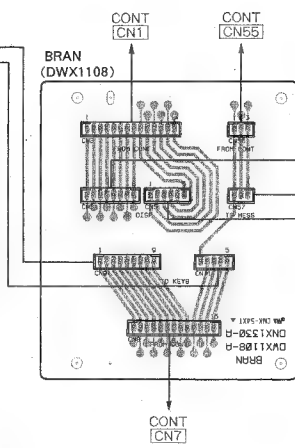
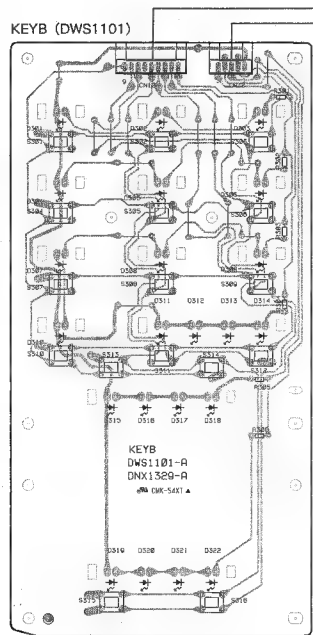
1.1.7 KEYB, BRAN, DISP, MESS, POSS, CNTB AND ROTA

A

B

C

D

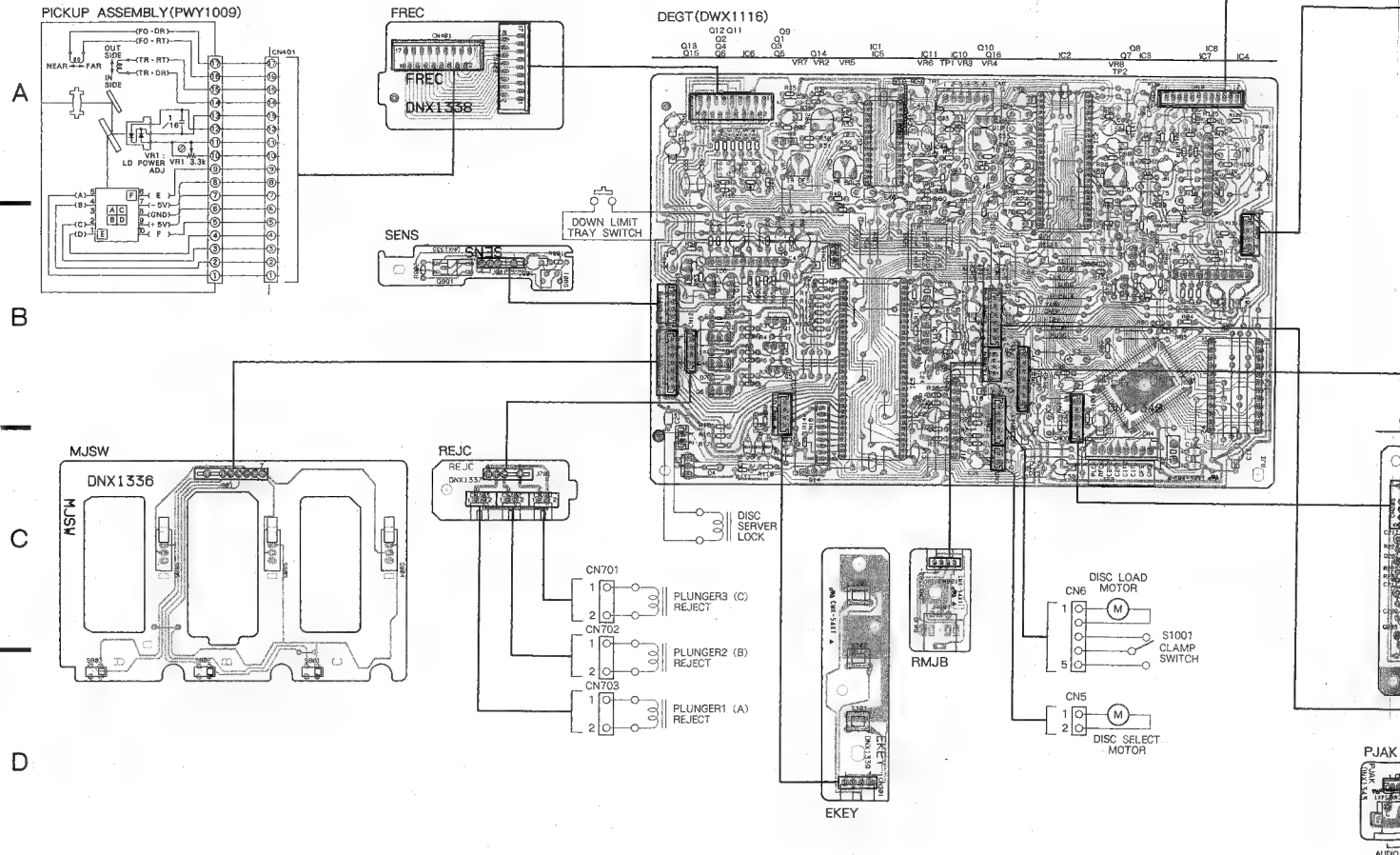


A

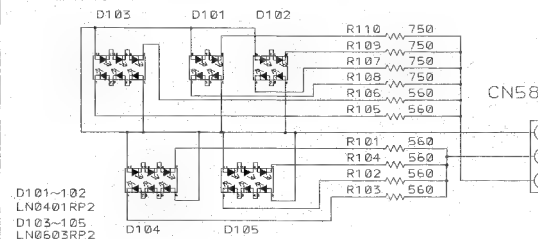
B

C

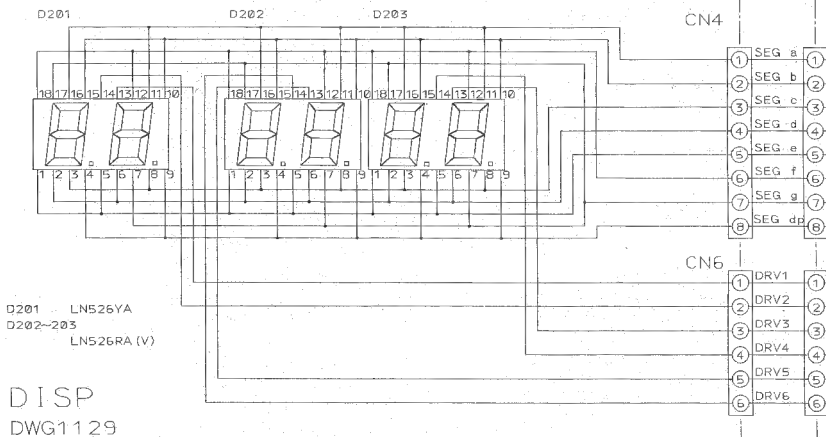
D



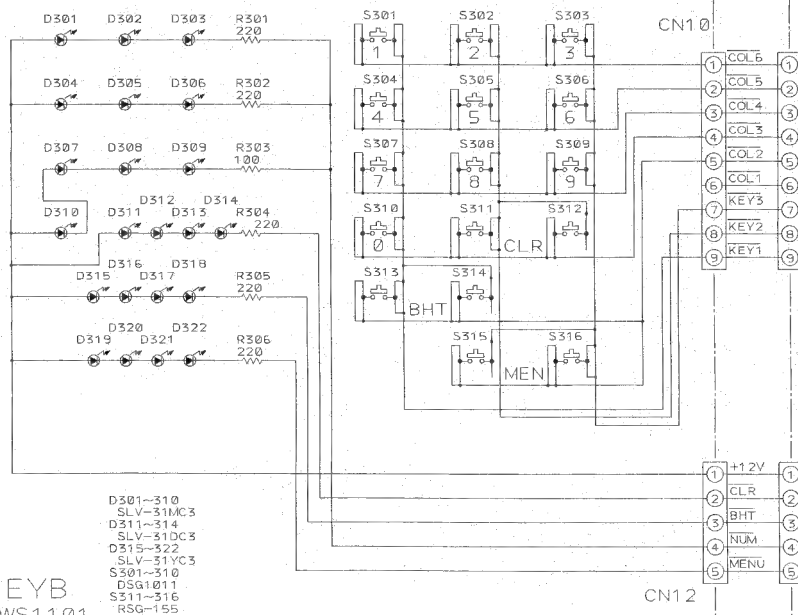
MESS DWG1128



BRAN DWX1108



DISP DWG1129



KEYB DWS1101

CN56

- ① V+12V
- ② DEPO
- ③ MAKE

(⇒ P38)

CONT
CN55

CN2

- ① SEG a
- ② SEG b
- ③ SEG c
- ④ SEG d
- ⑤ SEG e
- ⑥ SEG f
- ⑦ SEG g
- ⑧ SEG dp
- ⑨ DRV6
- ⑩ DRV5
- ⑪ DRV4
- ⑫ DRV3
- ⑬ DRV2
- ⑭ DRV1

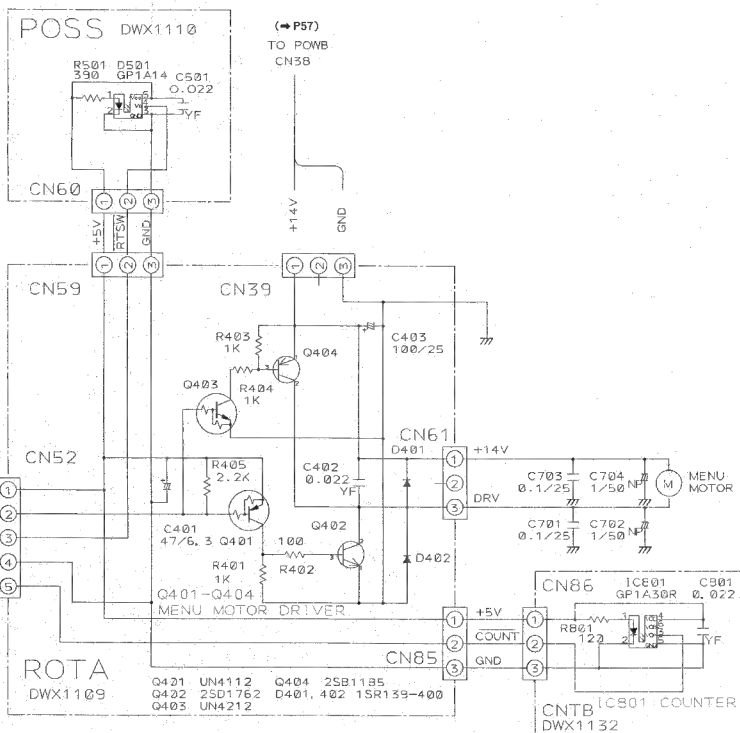
(⇒ P38)

CONT
CN1

CN8

- ① COL6
- ② COL5
- ③ COL4
- ④ COL3
- ⑤ COL2
- ⑥ COL1
- ⑦ KEY3
- ⑧ KEY2
- ⑨ KEY1
- ⑩ CLR
- ⑪ BHT
- ⑫ NUM
- ⑬ MENU

(⇒ P38)

CONT
CN7A
B
C
D
E
F

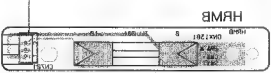
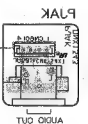
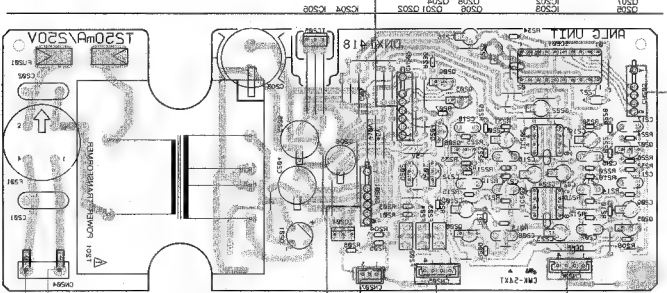
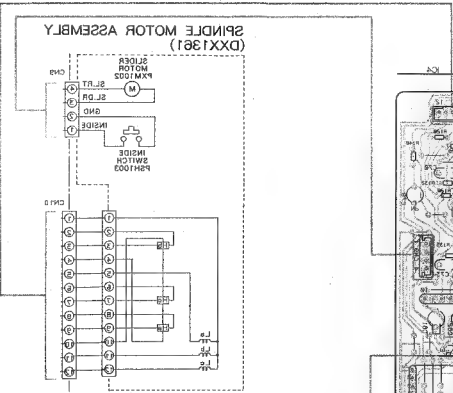
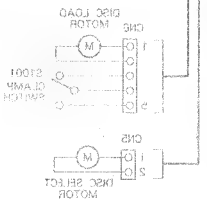
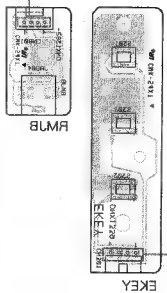
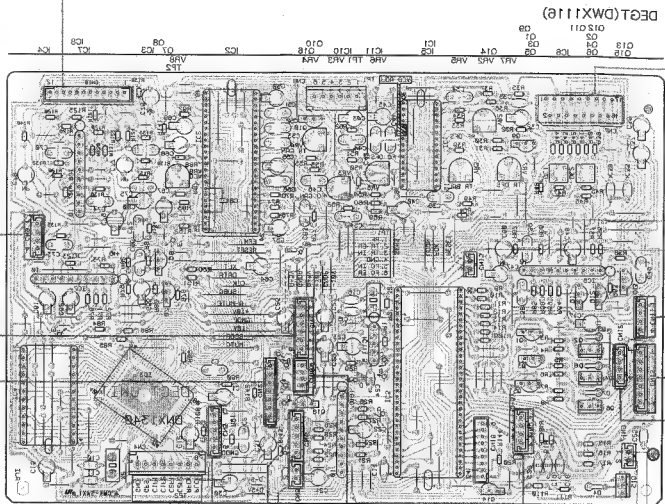
4.2 CD SECTION







B

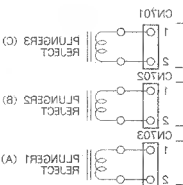
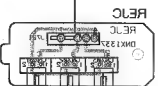
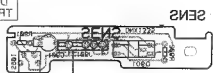
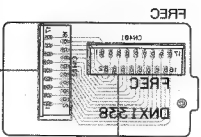
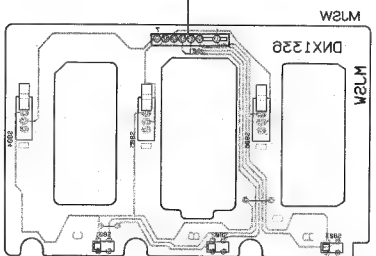
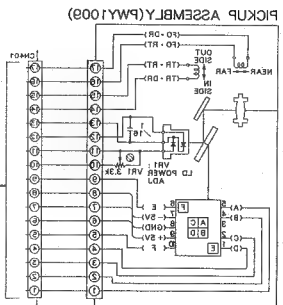


A

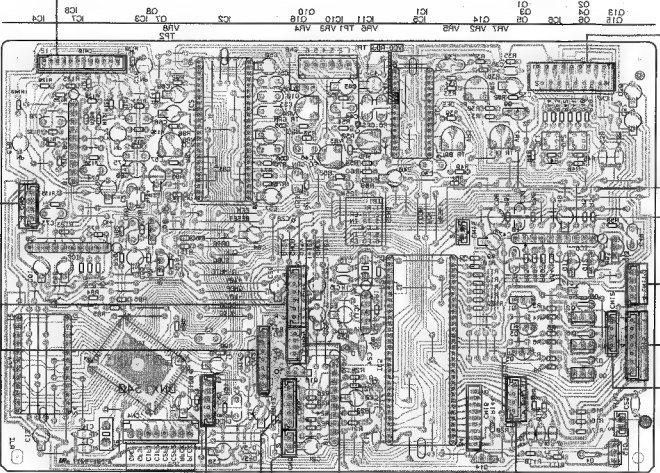
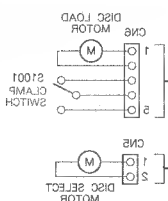
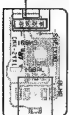
B

C

D

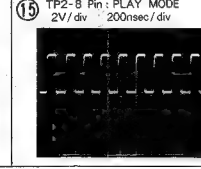
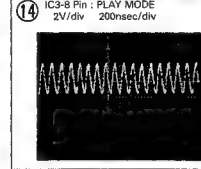
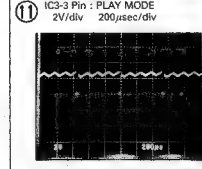
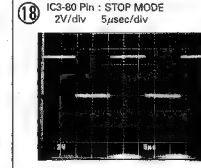
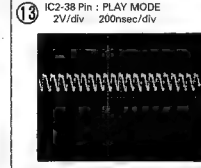
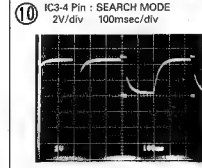
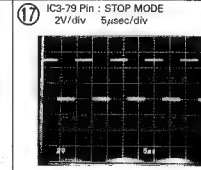
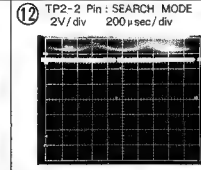
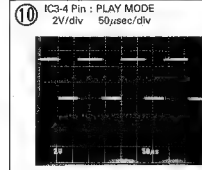
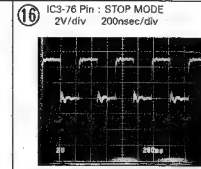
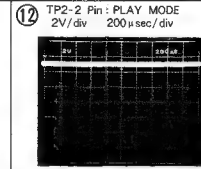
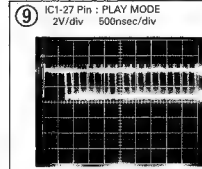
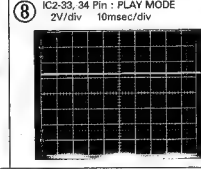
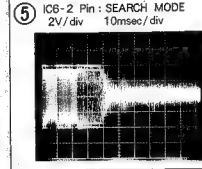
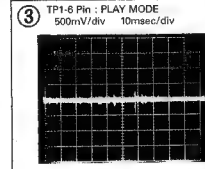
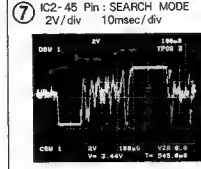
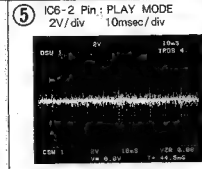
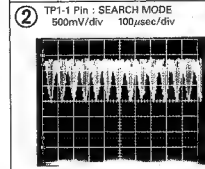
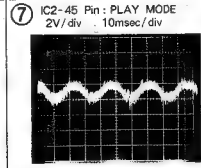
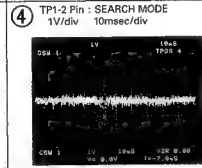
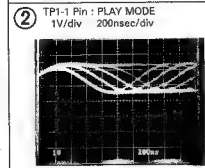
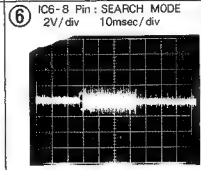
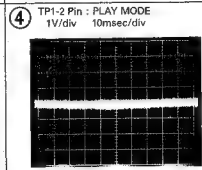
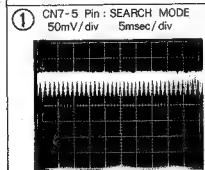
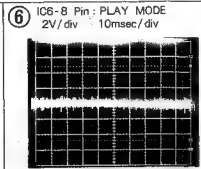
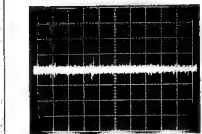
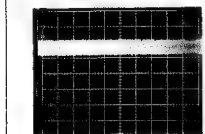


LOCK
DISC
SERVER



① CN7-5 Pin : PLAY MODE
50mV/div 5msec/div

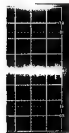
③ TP1-6 Pin : SEARCH MODE
500mV/div 10msec/div



suring points in the

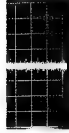
MODE

/div



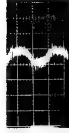
H MODE

/div



MODE

/div



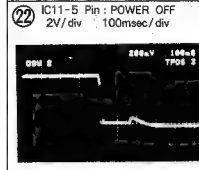
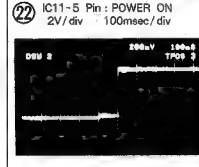
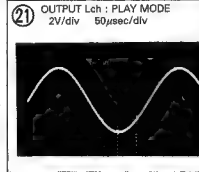
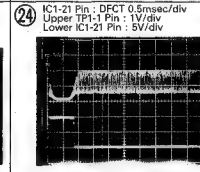
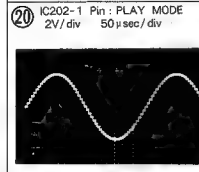
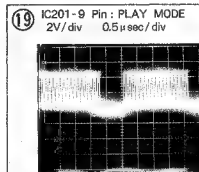
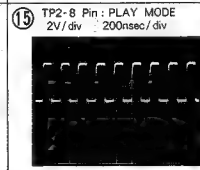
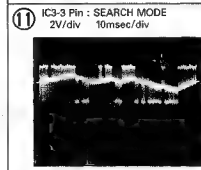
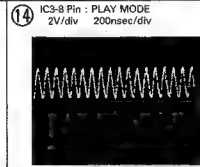
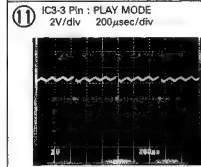
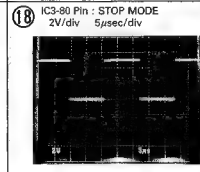
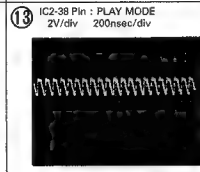
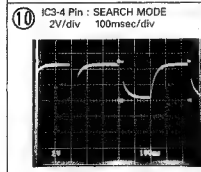
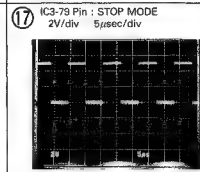
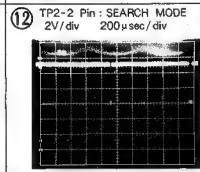
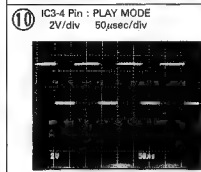
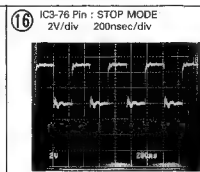
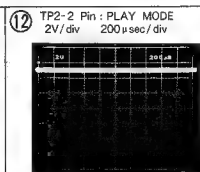
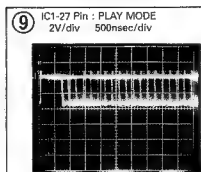
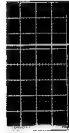
CH MODE

/div

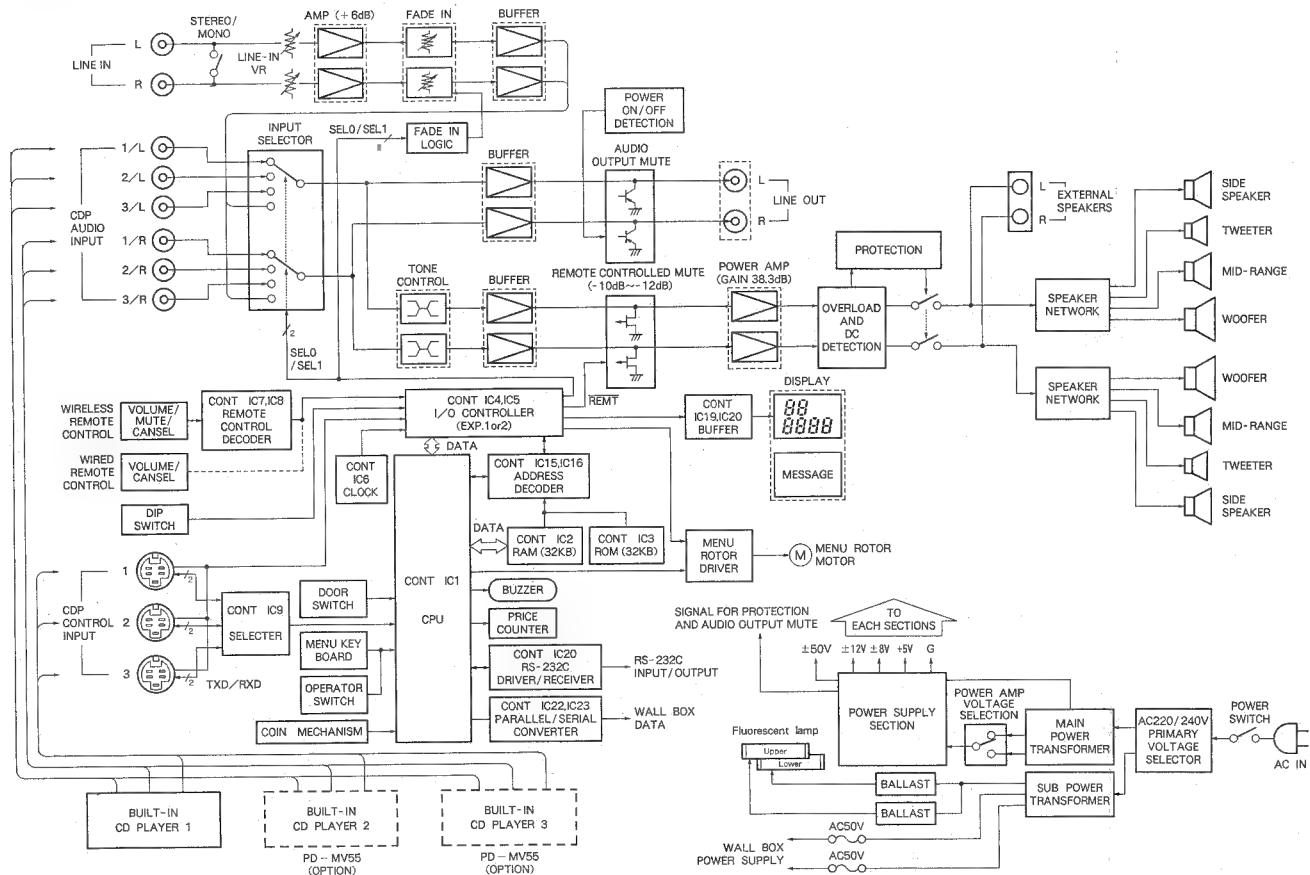


Y MODE

div



5. BLOCK DIAGRAM



6. P. C.

MAIN SE

NOTES :

- Parts witho
- Parts marke
- The Δ mark
- When order

Ex.1 When
J = 5' 560 Q
560 Q
47k Q
0.5 Q
1 Q
Ex.2 When
5.62k

Mark NO

CONT SEMICONT

IC1
IC10
IC11
IC12
IC13
IC14
IC16
IC17
IC19
IC2
IC20
IC22
IC23
IC24
IC26
IC3
IC4
IC6
IC7
IC8
IC9

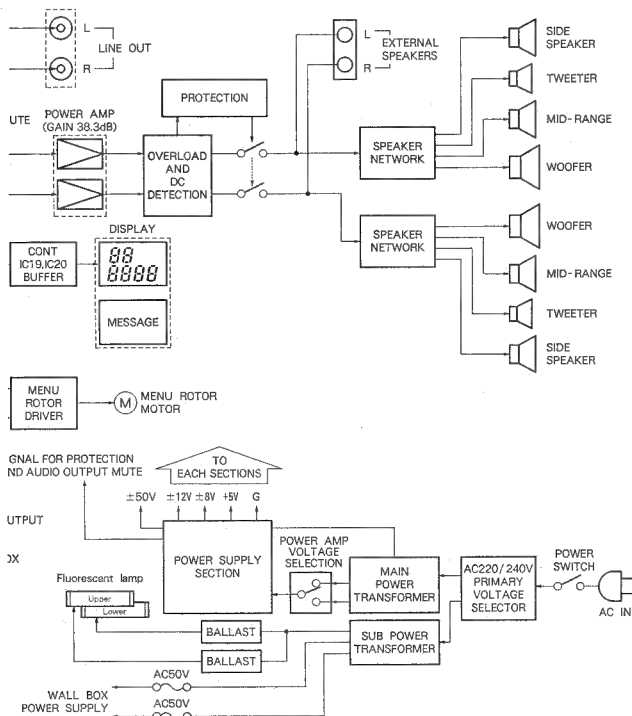
Q1
Q2, 3
Q36
Q37
Q38
Q4
Q43-
Q48
Q49
Q5
Q50-
Q6
Q7
Q84-
Q85

6. P. C. B's PARTS LIST

MAIN SECTION

NOTES:

- Parts without part number cannot be supplied.
- Parts marked with "®" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).
560 Ω \rightarrow 56 $\times 10^1 \rightarrow$ 561..... RD1/4PS [5] [6] [1] J
47k Ω \rightarrow 47 $\times 10^3 \rightarrow$ 473..... RD1/4PS [4] [7] [3] J
0.5 Ω \rightarrow 05..... RN2H [0] [5] [K]
1 Ω \rightarrow 010..... RS1P [0] [1] [0] K
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω \rightarrow 562 $\times 10^1 \rightarrow$ 5621..... RN1/4SR [5] [6] [2] [1] F



Mark NO Description Part NO.

CONT

SEMICONDUCTORS

IC1	MS074TSP
IC10 IC	MC145408P
IC11 SYSTEM PRESET IC	MS295L
IC12, 13 LOGIC IC	TC74HC14AP
IC14, 15 LOGIC IC	TC74HC00AP
IC16	TC74HC4002AP
IC17 LOGIC IC	SN74LS05N
IC19 TRANSISTOR ARRAY	MS4584P
IC2 CMOS S-RAM	FM62250LP-12
IC20 TRANSISTOR ARRAY	MS4584P
IC22 IC (RS-422A IC)	SN75176BP
IC23	H064941
IC24 LOGIC IC	TC74HC14AP
IC26 LOGIC IC	TC74HC08AP
IC3 IC	PW5157A
IC4, 5 IC	CXD1095Q
IC6 IC (REAL TIME CLOCK)	TC2350P
IC7 IC	P05027
IC8	TC74HC574AP
IC9 MULTIPLEXOR	TC74HC4052AP

Q1 TRANSISTOR	2SC3246
Q2, 3 TRANSISTOR	2SC1740S
Q36 TRANSISTOR	2SC1740S
Q37 TRANSISTOR	2SA1015
Q38, 39 TRANSISTOR	2SC1740S
Q4 TRANSISTOR	DTC124ES
Q43-46 TRANSISTOR	DTC124ES
Q48 TRANSISTOR	DTA124ES
Q49 TRANSISTOR	DTC124ES
Q5 TRANSISTOR	2SA1015
Q50-57 TRANSISTOR	DTC124ES
Q6 TRANSISTOR	2SC1740S
Q7 TRANSISTOR	DTA124ES
Q84-85 TRANSISTOR	DTC124ES
Q89, 90 TRANSISTOR	DTA124ES

Mark NO Description Part NO.

Q91-96	DTC114ES
D1 DIODE	1S3254
D17-19 DIODE	1S3254
D2, 20 DIODE	1S3254
D5, 4 DIODE	1S3254
D6-9 ZENER DIODE	MTZ5, 1B

COILS AND FILTERS

L1 RADIAL INDUCTOR	LA1010K
L2, 3 AXIAL INDUCTOR	LA1010K
F1	VTH1001
F10-19	VTH1001
F2	VTH1001
F20-23	VTH1001
F25, 28	VTH1001
F3	VTH1001
F30-34	VTH1001
F4-9	VTH1001

CAPACITORS

C1 CERAMIC CAPACITOR	CKCFY103250
C10 ELECT. CAPACITOR	CEA5330M16
C100, 101 CERAMIC CAPACITOR	CKCFY102250
C102-107 CERAMIC CAPACITOR	CKCFY103250
C108 CAPACITOR ARRAY	DCG1004
C109 CAPACITOR ARRAY	DCG1005
C11 CERAMIC CAPACITOR	CKCFY103250
C110 CAPACITOR ARRAY	DCG1005
C111, 112 CERAMIC CAPACITOR	CKCFY102250
C113 CERAMIC CAPACITOR	CKCFY102250
C114 CERAMIC CAPACITOR	CKCFY103250
C115 MYLAR FILM CAPACITOR	COMA253150
C116, 12 ELECT. CAPACITOR	CEA5330M16
C13-16 CERAMIC CAPACITOR	CKCFY103250
C17 ELECT. CAPACITOR	CEA5330M16
C18 ELECT. CAPACITOR	CEA5330M50
C19 CERAMIC CAPACITOR	CKCFY103250
C2 ELECT. CAPACITOR	CEA5330M16
C20 CERAMIC CAPACITOR	CKCFY103250
C21 ELECTROLYTIC CAPACIT	CEA5332W683

Mark No.	Description	Part No.
C22-26	CERAMIC CAPACITOR	CKCYF103Z50
C27	ELECTR. CAPACITOR	CEAS330M16
C28	CERAMIC CAPACITOR	CKCYF103Z50
C29	ELECTR. CAPACITOR	CEAS330M16
C3, 30	CERAMIC CAPACITOR	CKCYF103Z50
C31, 32	CERAMIC CAPACITOR	CCCH150J50
C33	CERAMIC CAPACITOR	CKCYF103Z50
C34	ELECTR. CAPACITOR	CEAS330M16
C35	CERAMIC CAPACITOR	CKCYF103Z50
C36	ELECTR. CAPACITOR	CEAS330M16
C37, 38	CERAMIC CAPACITOR	CCCSL151J50
C39	CERAMIC CAPACITOR	CKCYF103Z50
C4	ELECTR. CAPACITOR	CEAS330M16
C40	CERAMIC CAPACITOR	CKCYF103Z50
C41	ELECTR. CAPACITOR	CEAS330M16
C42	CERAMIC CAPACITOR	CKCYF103Z50
C43	ELECTR. CAPACITOR	CEAS330M16
C44	CERAMIC CAPACITOR	CKCYF103Z50
C45	ELECTR. CAPACITOR	CEAS330M16
C46	CERAMIC CAPACITOR	CKCYF103Z50
C47	ELECTR. CAPACITOR	CEAS330M16
C48	CERAMIC CAPACITOR	CKCYF103Z50
C49	ELECTR. CAPACITOR	CEAS330M16
C5	CERAMIC CAPACITOR	CKCYF103Z50
C50	1F CAPACITOR	DCH1004
C51	ELECTR. CAPACITOR	CEAS47W50
C52	CERAMIC CAPACITOR	CKCYF103Z50
C53	ELECTR. CAPACITOR	CEAS330M16
C54, 55	CERAMIC CAPACITOR	CKCYF103Z50
C56	CERAMIC CAPACITOR	CKCYF102Z50
C57	CAPACITOR ARRAY	DCG1005
C58	CAPACITOR ARRAY	DCG1004
C59	CERAMIC CAPACITOR	CKCYF103Z50
C6, 60	ELECTR. CAPACITOR	CEAS330M16
C61	CAPACITOR ARRAY	DCG1005
C62	CAPACITOR ARRAY	DCG1004
C63, 64	CERAMIC CAPACITOR	CKCYF103Z50
C65, 66	CERAMIC CAPACITOR	CCCH100D50
C67	CERAMIC CAPACITOR	CKCYF103Z50
C68, 69	ELECTR. CAPACITOR	CEAS330M16
C7	CERAMIC CAPACITOR	CKCYF103Z50
C70	CAPACITOR ARRAY	DCG1004
C71	CAPACITOR ARRAY	DCG1005
C72	CERAMIC CAPACITOR	CKCYF103Z50
C73	ELECTR. CAPACITOR	CEAS330M16
C74	CAPACITOR ARRAY	DCG1006
C75	ELECTR. CAPACITOR	CEAS330M16
C76	CERAMIC CAPACITOR	CKCYF103Z50
C77	ELECTR. CAPACITOR	CEAS471M10
C78	ELECTR. CAPACITOR	CEAS330M16
C79	CERAMIC CAPACITOR	CKCYF103Z50
C8, 80	ELECTR. CAPACITOR	CEAS330M16
C81, 82	CERAMIC CAPACITOR	CKCYF103Z50
C83	ELECTR. CAPACITOR	CEAS330M16
C84-87	CERAMIC CAPACITOR	CKCYF103Z50

Mark No.	Description	Part No.
C88	ELECTR. CAPACITOR	CEAS330M16
C89, 9	CERAMIC CAPACITOR	CKCYF103Z50
C90	ELECTR. CAPACITOR	CEAS330M16
C91	CERAMIC CAPACITOR	CKCYF103Z50
C92	ELECTR. CAPACITOR	CEAS330M16
C93	CERAMIC CAPACITOR	CKCYF103Z50
C94	ELECTR. CAPACITOR	CKCYF103Z50
C95-98	CERAMIC CAPACITOR	CKCYF103Z50
C99	CERAMIC CAPACITOR	CKCYF102Z50

RESISTORS

R113	RESISTOR ARRAY (10K)	RA7S103J
R118	RESISTOR ARRAY (10K)	RA5S103J
R13, 120	RESISTOR ARRAY (10K)	RA8S103J
R23	RESISTOR ARRAY (4.7K)	RA8S472J
R59	RESISTOR ARRAY (10K)	RA8S103J
Other resistors		RD1/6PM □□□ J

OTHERS

X1	CRYSTAL RESONATOR	DSS1001
X2	CERAMIC RESONATOR	VSS-041
X3	CRYSTAL RESONATOR	DSS1014
	PIEZOELECTRIC BUZZER	DPX1002
	IC SOCKET (28-P)	VXH-027

◎PAMP (DWH1007)

SEMICONDUCTORS

IC1	AUDIO IC	STK4231-2
Q1	TRANSISTOR	ZSC1740S
Q12, 13	P-FET	2S1103
Q2	TRANSISTOR	ZSC1740S
Q3	TRANSISTOR	ZSC1775
Q4	TRANSISTOR	2SA933S
Q5	TRANSISTOR	ZSC1740S
Q6	TRANSISTOR	2SA1233
Q7, 8	TRANSISTOR	2SA870
D11	DIODE	1SR35-100AVL
D2	DIODE	1SS254
D3	DIODE	1SS142
D5	DIODE	1SR35-100AVL
D7	ZENER DIODE	MTZJ6.85
D8, 9	DIODE	1SR35-100AVL

RELAY

RY1		RSR1014
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COILS

L1, 2	COIL	DTH1116
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CAPACITORS

C1	CERAMIC CAPACITOR	CKCYB222K50
C10	ELECTR. CAPACITOR	CEAS101M50
C11	ELECTR. CAPACITOR	CEASR22M50
C12	CERAMIC CAPACITOR	CKCYB222K50
C13, 14	ELECTR. CAPACITOR	DCH1016
C16	ELECTR. CAPACITOR	CEAS221M16
C17	ELECTR. CAPACITOR	CEAS101M50
C18	ELECTR. CAPACITOR	CEAS010M50
C19	ELECTR. CAPACITOR	CEAS471M10
C2	ELECTR. CAPACITOR	CEASR22M50

Mark	No.	Description	Part No.
	C21	ELECTR. CAPACITOR	CEAS47W50
	C22-25	AUDIO FILM CAPACITOR	CFTXA104J50
	C3	ELECTR. CAPACITOR	CEAS101M10
	C4	ELECTR. CAPACITOR	CEAS470M50
	C6	CAPACITOR (ALUMINUM)	DCH1022
	C7	ELECTR. CAPACITOR	DCH1019
	C8	ELECTR. CAPACITOR	CEAS470M50
	C9	ELECTR. CAPACITOR	CEAS101M10

RESISTORS

R11,12	CARBON FILM RESISTOR	RD1/2LP□□□J
R14	CARBON FILM RESISTOR	RD1/2LP472J
R3,16	CARBON FILM RESISTOR	RD1/2PMP681J
R33	CARBON FILM RESISTOR	RD1/2LP561J
R38,39	RESISTOR	DCN1020
R41-44	CARBON FILM RESISTOR	RD1/2LF100J
R7-9	CARBON FILM RESISTOR	RD1/2LF□□□J
Other resistors		RD1/6PM□□□J

ACIN

COIL

△	L801	FILTER	YTL-004
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CAPACITORS

△	C301-303	CAPACITOR (CERAMIC)	RCG-009
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OTHERS

△	CN36,74	CONNECTOR	SD-5277-02A
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◎ POWB (DWR1078)

SEMICONDUCTORS

	IC101	REGULATOR IC	NJM78M05PA
	IC102	MECHANISM DRIVER IC	TAT291S
	IC103	REGULATOR IC	NJM78M12PA
	IC104	REGULATOR IC	NJM78M08PA
	IC105	REGULATOR IC	NJM79M08PA
△	IC106	REGULATOR IC	NJM79L12A
	D101	DIODE	SZYB10F
	D102-105	DIODE	1SR139-400
	D106	ZENER DIODE	MTZ4.3C
△	D108	DIODE	SZYB10F
△	D109	DIODE	S10VB10-DF9

CAPACITORS

	C101	CERAMIC CAPACITOR	CKCYF103Z50
	C102	ELECTR. CAPACITOR	RCH1032
	C103	ELECTR. CAPACITOR	CEAS47W50
	C104	ELECTR. CAPACITOR	CEAS470M25
	C105	ELECTR. CAPACITOR	CEAS010M50
	C106	ELECTR. CAPACITOR	CEAS221M25
	C107	CERAMIC CAPACITOR	CKCYF103Z50
	C109	ELECTR. CAPACITOR	CEAS010M50
	C110,111	ELECTROLYTIC CAPACIT	CEAS102M35
△	C112,113	CAPACITOR (CERAMIC)	RCG-009
	C114,115	ELECTROLYTIC CAPACIT	DCH1034
	C116,117	ELECTR. CAPACITOR	CEAS470M25
	C118-121	ELECTR. CAPACITOR	CEAS010M50

Mark	No.	Description	Part No.
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RESISTORS

△	R103	CARBON FILM RESISTOR	RD1/2LP47J
△	R112,113	METAL OXIDE RESISTOR	RS1LMP151J
	R114,115	METAL OXIDE RESISTOR	RS1LMP103J
△	R108	METAL OXIDE RESISTOR	RS1LMP3R3J
	R101,102,104-107,110,111	CARBON FILM RESISTOR	RD1/4VM□□□J

OTHERS

△	CN76	CONNECTOR	SD-5277-02A
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PSWB

SWITCH

△	S	POWER SWITCH (POWER)	DSA1005
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CAPACITORS

△	C201,202	CAPACITOR (CERAMIC)	RCG-009
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PSEL

SWITCH

△	S101	VOLTAGE SELECTOR SW	DSX1003
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OPER

SWITCHES

	S301-303	LIGHT ACTION SWITCH	DSG-107
		(MEMORY CLEAR, MENU ROTATION, SERVICE MODE)	

◎ SPTB (DWX1124)

OTHERS

△		SPEAKER TERMINAL 4-P	AKE1013
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CRJB

CAPACITORS

	C501	CAPACITOR ARRAY	DCG-105
	C502	CERAMIC CAPACITOR	CKCYF102Z50
	C503	CERAMIC CAPACITOR	CKCYF103Z50

OTHERS

		SOCKET (CONTROL)	VKN1072
--	--	------------------	---------

◎ MESS (DWG1128)

SEMICONDUCTORS

	D101,102	LED	LR0401RP2
	D103-105	LED	LR0503RP2

RESISTORS

		All resistor	RD1/6PM□□□J
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◎ ASEL (DWS1107)

SWITCH

△	S	VOLTAGE SELECTOR SW (SPEAKER SELECTOR)	DSX1010
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Mark	No.	Description	Part No.
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◎DISP (DWG1129)

SEMICONDUCTORS

D201	LED	LN526YA
D202, 203	LED	LN526RA(Y)

◎PREB (DWK1013)

SEMICONDUCTORS

IC1	LOGIC IC	TC4052BP
IC2, 3	OP-AMP IC	NJM4558S
Q1, 2	TRANSISTOR	2SC3311A
Q8	TRANSISTOR	2SA933S
Q4	TRANSISTOR	2SC1740S
Q5	TRANSISTOR	DTA124ES
D1	DIODE	1SS254
D2	ZENER DIODE	MT27. 5B
D8	ZENER DIODE	MT25. 1B/C

CAPACITORS

C1	CERAMIC CAPACITOR	CKCYF103Z50
C10	CERAMIC CAPACITOR	GGCYX473M25
C11, 12	ELECTR. CAPACITOR	CEAS47M50
C18-15	ELECTR. CAPACITOR	CEAS47M50
C16	MYLOR FILM CAPACITOR	QOMA123J50
C17	AUDIO FILM CAPACITOR	CPTXA473J50
C18	MYLOR FILM CAPACITOR	QOMA122J50
C19	MYLOR FILM CAPACITOR	QOMA682J50
C2	CERAMIC CAPACITOR	CKCYF103Z50
C20	ELECTR. CAPACITOR	CEAS47M50
C21	ELECTR. CAPACITOR	CEAS470M16
C22	ELECTR. CAPACITOR	CEAS47M50
C23	ELECTR. CAPACITOR	CEAS470M16
C24-26	ELECTR. CAPACITOR	CEAS47M50
C27	MYLOR FILM CAPACITOR	QOMA122J50
C28	MYLOR FILM CAPACITOR	QOMA682J50
C29	ELECTR. CAPACITOR	CEAS47M50
C8	ELECTR. CAPACITOR	CEAS010M50
C30	ELECTR. CAPACITOR	CEAS47M50
C31	MYLOR FILM CAPACITOR	QOMA123J50
C32	AUDIO FILM CAPACITOR	CPTXA473J50
C33, 34	ELECTR. CAPACITOR	CEAS010M50
C35	CERAMIC CAPACITOR	GGCYX473M25
C36	ELECTR. CAPACITOR	CEAS221M16
C4	ELECTR. CAPACITOR	CEAS010M50
C5	CERAMIC CAPACITOR	GGCYX473M25
C6, 7	ELECTR. CAPACITOR	CEAS470M16
C8, 9	CERAMIC CAPACITOR	GGCYX473M25

RESISTORS

VR1	VARIABLE RESISTOR	DCS1013
VR2, 3	VARIABLE RESISTOR	DCS1014
Other resistors		RD1/6PW□□□J

WBFT

OTHERS

CN150, 151

DKA1003

Mark	No.	Description	Part No.
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◎BGMB (DWK1014)

SEMICONDUCTORS

IC201	OP-AMP IC	NJM4558DX
IC202	E-VR IC	H5222L
IC203	LOGIC IC	TC74HC00AP
Q201, 202	TRANSISTOR	2SC1740S
D201, 202, 204	DIODE	1SS254
D203	ZENER DIODE	MT25. 1B

SWITCH

S201	SWITCH (STEREO/MONO)	DSH-106
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CAPACITORS

C201, 202	ELECTR. CAPACITOR	CEANP010M50
C203, 204	ELECTR. CAPACITOR	CEAS010M50
C205, 206	ELECTR. CAPACITOR	CEAS47M50
C207, 208	ELECTROLYTIC CAPACIT	CEAS2R2M50
C209	ELECTROLYTIC CAPACIT	CEANP221M10
C210, 211	ELECTR. CAPACITOR	CEAL470M16
C212	CERAMIC CAPACITOR	CKDYB222K50

RESISTORS

VR201	VARIABLE RESISTOR	DCS1010
Other resistors		RD1/6PW□□□J

OTHERS

JA201	PIV JACK	PKB-009
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◎KEYB (DWS1101)

SEMICONDUCTORS

D301-310	LED	SLY-31MC3
D311-314	LED	SLY-31DC3
D315-322	LED	SLY-31YC3

SWITCHES

S301-310	SWITCH (1-10)	DSG1011
S311-316	SWITCH	RSG-155
(CLEAR, BEST HITS ROTATION MENU)		

RESISTORS

All resistors		RD1/6PW□□□J
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RMJB

SEMICONDUCTOR

D401-404	ZENER DIODE	MTZJ5. 6B
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COIL

L401	AXIAL INDUCTOR	LAU010K
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CAPACITORS

C401-406	CERAMIC CAPACITOR	CKCYF103Z50
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RESISTORS

R401-404	CARBONFILM RESISTOR	RD1/6PW221J
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OTHERS

SOCKET (REMOTE CONTROL)		VKN1072
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Mark	No.	Description	Part No.
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WBJB**CAPACITORS**

C101, 102	CERAMIC CAPACITOR	CKCYF102Z50
C103	CERAMIC CAPACITOR	CKCYF103Z50

OTHERS

CN101, 102	TERMINAL (WALL BOX CONTROL TERMINAL)	DKA1004
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RSSB**SWITCH**

S201	DIP SWITCH (FUNCTION)	DSK1011
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CAPACITORS

C201, 202	CERAMIC CAPACITOR	CKCYF102Z50
C203, 204	CERAMIC CAPACITOR	CKCYF103Z50

RESISTOR

R201	CARBONFILM RESISTOR	RD1/6PM472J
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OTHERS

J201	SOCKET (DATA OUT)	DKM1037
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IOJB**SEMICONDUCTORS**

Q100, 101	TRANSISTOR	2SA1309A
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CAPACITORS

C100, 101	CERAMIC CAPACITOR	CKPYB102K50
C102, 103	CERAMIC CAPACITOR	CKCYF103Z50

RESISTORS

R100-103	CARBONFILM RESISTOR	RD1/6PM□□□J
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OTHERS

JA53	JACK (LINE IN/OUT)	RKB-020
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◎BRAN (DWX1108)

There is not supplied parts in this unit.

◎ROTA (DWX1109)**SEMICONDUCTORS**

Q401	DIGITAL TRANSISTOR	UN4112
Q402	TRANSISTOR	2SD1762-F8
Q403	DIGITAL TRANSISTOR	UN4212
Q404	TRANSISTOR	2SD1185-F8
D401, 402	RECTIFIER DIODE	1SR139-400

CAPACITORS

C401	ELECTR. CAPACITOR	CEAL470M6R3
C402	CERAMIC CAPACITOR	CKPYF223Z25
C403	ELECTROLYTIC CAPACIT	CEAS101M25

RESISTORS

R401-405	CARBONFILM RESISTOR	RD1/6PM□□□J
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Mark	No.	Description	Part No.
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◎POSS (DWX1110)**SEMICONDUCTOR**

D501		GP1A14
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CAPACITOR

C501	CERAMIC CAPACITOR	CKPYF223Z25
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RESISTOR

R501	CARBONFILM RESISTOR	RD1/6PM391J
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SENS**SEMICONDUCTOR**

D701	LED (RED)	SLR-54VR35H
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CAPACITOR

C701	CERAMIC CAPACITOR	CKPYF223Z25
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OTHERS

	REMOTE SENSOR	GP1U50X
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◎CNTB (DWX1132)**SEMICONDUCTOR**

IC801		GP1A30R
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CAPACITOR

C801	CERAMIC CAPACITOR	CKPYF223Z25
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RESISTOR

R801	CARBONFILM RESISTOR	RD1/6PM121J
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LAMP**CAPACITORS**

△	C601, 602	CAPACITOR (CERAMIC)	RCG-009
△	C603, 604	POWER CAPACITOR	DCG1003

RESISTOR

△	R601, 602	CARBON FILM RESISTOR	RD1/4PM225J
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OTHERS

△	CN33	CONNECTOR	SD-5277-02A
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◎NETWORK ASSEMBLY (SWN1219)**COILS**

L1	(3.3mH)	STR1100
L3	(3.9mH)	STR1021
L4	(0.22mH)	STN-327

CAPACITORS

C1		CES4220KJ
C2		CES4100KJ
C4		CES40X1K5KJ

RESISTOR

R4		RT10BAL100K
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OTHERS

Brl	(1A)	SSG-004
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CD SECTION

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "⑤" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by

J = 5%, and K = 10%).
 560 Ω → 56 × 10¹ → 561..... RD1/4PS 561J
 47k Ω → 47 × 10³ → 473..... RD1/4PS 473J
 0.5 Ω → 0R5..... RN2H 0R5K
 1 Ω → 010..... RS1P 010K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621..... RN1/4SR 5621F

Mark	NO	Description	Part NO.
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EKEY

SWITCHES

S801-303 SWITCH (EJECT(A, B, C)) DSG1009

DEGT (DWX1116)

SEMICONDUCTORS

IC1	PRE AMP IC	CXA1081S
IC10	POWER OP AMP	TA7256P
IC11	SYSTEM PRESET IC	M51953BL
IC2	SERVO CONTROL IC	CXA1082AS
IC3	EFM DEMODULATION IC	CXD11350Z
IC4	MEMORY IC	CX5816PM-12L
IC5	MCU	PD0063B
IC6-8	POWER OP AMP	TA7256P
Q1	TRANSISTOR	DTA124ES
Q10	TRANSISTOR	DTF124ES
Q11	TRANSISTOR	2SC1740S
Q12	TRANSISTOR	DTA124ES
Q13	TRANSISTOR	2SA933S
Q14	TRANSISTOR	DTA124ES
Q15	TRANSISTOR	2SC249T
Q16	TRANSISTOR	DTF124ES
Q2	TRANSISTOR	2SC249T
Q3	TRANSISTOR	DTA124ES
Q4	TRANSISTOR	2SC249T
Q5	TRANSISTOR	DTA124ES
Q6	TRANSISTOR	2SC249T
Q7, 8	TRANSISTOR	2SC1740S
Q9	TRANSISTOR	2SA1309
D4-7	DIODE	1SS254

CAPACITORS

C1	ELECTR. CAPACITOR	CEASR47M50
C10, 11	CERAMIC CAPACITOR	CCCH300J50
C12, 13	ELECTR. CAPACITOR	CEAS330M16
C14	CERAMIC CAPACITOR	CKCTF102K50
C15, 16	CERAMIC CAPACITOR	CCCH220J50

Mark	NO	Description	Part NO.
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C17	ELECTR. CAPACITOR	CEAS330M16
C18, 19	CERAMIC CAPACITOR	CKCTY102K50
C2	MYLOR FILM CAPACITOR	CQMA333J50
C20	CERAMIC CAPACITOR	CKCTY102K50
C21, 22	ELECTR. CAPACITOR	CEAS330M16
C23	ELECTR. CAPACITOR	CEAS10M50
C24	CERAMIC CAPACITOR	CKCTY102K50
C25	CERAMIC CAPACITOR	CKCTF102Z50
C26-29	ELECTR. CAPACITOR	CEAS330M16
C3	MYLOR FILM CAPACITOR	CQMA102J50
C30, 31	ELECTR. CAPACITOR	CEAS330M16
C32	ELECTR. CAPACITOR	CKCTY101M10
C33	CERAMIC CAPACITOR	CCCH390J50
C34	MYLOR FILM CAPACITOR	CQMA472J50
C35	CERAMIC CAPACITOR	CCCH300J50
C36, 37	ELECTR. CAPACITOR	CEAS330M16
C38	CERAMIC CAPACITOR	CCCH300J50
C39	MYLOR FILM CAPACITOR	CQMA333J50
C40	ELECTR. CAPACITOR	CEAS330M16
C41	MYLOR FILM CAPACITOR	CQMA332J50
C42	MYLOR FILM CAPACITOR	CQMA103J50
C43	ELECTR. CAPACITOR	CEASR47M50
C44	MYLOR FILM CAPACITOR	CQMA103J50
C45	ELECTR. CAPACITOR	CEAS330M16
C46	MYLOR FILM CAPACITOR	CQMA272J50
C47, 48	ELECTR. CAPACITOR	CEAS330M16
C49	MYLOR FILM CAPACITOR	CQMA333J50
C50	ELECTR. CAPACITOR	CEAS330M16
C51	MYLOR FILM CAPACITOR	CQMA472J50
C52, 53	MYLOR FILM CAPACITOR	CQMA104J50
C54	MYLOR FILM CAPACITOR	CQMA102J50
C55	ELECTR. CAPACITOR	CEAS47M50
C56	MYLOR FILM CAPACITOR	CQMA104J50
C57	ELECTR. CAPACITOR	CEAS330M16
C58	MYLOR FILM CAPACITOR	CQMA333J50
C59	MYLOR FILM CAPACITOR	CQMA104J50
C60	ELECTROLYTIC CAPACIT	CEANP47M50
C61, 62	ELECTR. CAPACITOR	CEAS330M16
C63	MYLOR FILM CAPACITOR	CQMA103J50
C64	ELECTR. CAPACITOR	CEAS330M16

Mark	No.	Description	Part No.
	C65	ELECTR. CAPACITOR	CEAS101M10
	C66	MYLOR FILM CAPACITOR	CQMA472J50
	C67	ELECTR. CAPACITOR	CEAS33M50
	C68, 69	ELECTR. CAPACITOR	CEAS330M16
	C70-75	CERAMIC CAPACITOR	000CH221J50
	C76-78	ELECTR. CAPACITOR	CEANP010M50
	C79, 80	ELECTR. CAPACITOR	CEAS330M16
	C81	CERAMIC CAPACITOR	CKDYF103Z50

RESISTORS

YR2	SEMI-FIXED RESISTOR	YRTB6VS103
YR3-7	VR	YRTB6VS223
YR8	VR	YRTB6VS102
Other resistors		RD1/6PM□□□J

OTHERS

DL1, 2	DELAY LINE	PTF1012
X1	CRYSTAL RESONATOR	DSS1010
X2	CRYSTAL RESONATOR	PSS-012
CN4		B6P-SHP-1AA
CN7		5597-17APB
CN8		B6P-SHP-1AA
	IC SOCKET	VKN-029

DJAK**CAPACITOR**

CS01	CAPACITOR ARRAY	DCG1007
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OTHERS

JA501	SOCKET	VKN1072
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PJAK**OTHERS**

JA601	JACK	PKB1009
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MJSW**SWITCHES**

S801-803	PUSH SWITCH	PSH1008
	(MJ LOCK (1, 2, 3))	
S804-808	SWITCH	PSH1005
	(MJ SENS (1, 2, 3))	

SENS**SEMICONDUCTOR**

Q901		GP1AS2HR
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SWITCH

S901	(UP LIMIT)	RSP1007
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CAPACITOR

CS01	ELECTROLYTIC CAPACIT	CEJA100M16
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RESISTORS

R901, 902	CARBON FILM RESISTOR	RD1/6PM□□□J
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Mark	No.	Description	Part No.
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REJC

There is not supplied parts in this unit.

FREC**OTHERS**

CN401, 402	CONNECTOR	5597-17APB
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HRMB

There is not supplied parts in this unit.

RMJB**OTHERS**

MINI JACK 3P	DKN1028
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©ANLG (DWX1155)**SEMICONDUCTORS**

IC201 D/A CONVERTER	LC7881-C
IC202, 203 LINEAR IC	NJM4558D
IC204 REGULATOR IC	NJM79M05FA
IC205 REGULATOR IC	NJM7805FA
Q201, 202 TRANSISTOR	DTA124ES
Q203 TRANSISTOR	DTA124ES
Q204 TRANSISTOR	DTA124ES
Q205, 206 TRANSISTOR	2SD1302
Q207, 208 TRANSISTOR	2SC1740S
Q209 TRANSISTOR	DTA124ES
D201 BRIDGE RECTIFIER	2W02-5008-L

COIL AND FILTERS

L201 FILTER	VTL-157
F202-204	VTH1001

CAPACITORS

C201, 202 CAPACITOR (CERAMIC)	RCG-009
C203 CAPACITOR (ALUMINUM)	VCH1050
C204 ELECTROLYTIC CAPACIT	CEAS222M16
C205 ELECTR. CAPACITOR	CEAS102M10
C206 ELECTR. CAPACITOR	CEAS471M10
C207, 208 MYLOR FILM CAPACITOR	CQMA102J50
C209, 210 ELECTR. CAPACITOR	CEAS220M50
C211, 212 MYLOR FILM CAPACITOR	CQMA821J50
C213, 214 MYLOR FILM CAPACITOR	CQMA471J50
C215, 216 MYLOR FILM CAPACITOR	CQMA472J50
C217, 218 MYLOR FILM CAPACITOR	CQMA683J50
C219, 220 ELECTR. CAPACITOR	CEAS220M50
C221-225 ELECTR. CAPACITOR	CEAS330M16
C226 ELECTR. CAPACITOR	CEAS101M10
C227 CERAMIC CAPACITOR	CKCYF103Z50

RESISTORS

All resistors	RD1/6PM□□□J
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7. ADJUSTMENTS

7.1 MECHANICAL ADJUSTMENTS

7.1.1 MAIN SECTION

- Synchronous adjustment of three surfaces of the menu (Fig. 7-1)

PREPARATIONS

- Adjust without installing the motor (menu).
 - Fix the center pulley to the menu shaft with the screws.
- (1) Apply synchro belt between synchro pulley and center pulley both on the right and left sides.
 - (2) While applying a spring (tension) to the underframe and tension plate, apply a tension to the synchro belt.
 - (3) Fix the tension plate to the underframe with screw ①.
 - (4) By placing a flat plate such as a ruler on them, align the three surfaces of the menu with each other on the same level.
 - (5) Fix the menu shaft to the synchro pulley using a hexagonal wrench.
 - (6) Remove the plate placed on the menu and check the following items while turning the menu by hand.
 1. Check that the three surfaces of the menu rotate smoothly.
 2. Check that all the three surfaces align with each other on the same level after turning the menu shaft once.

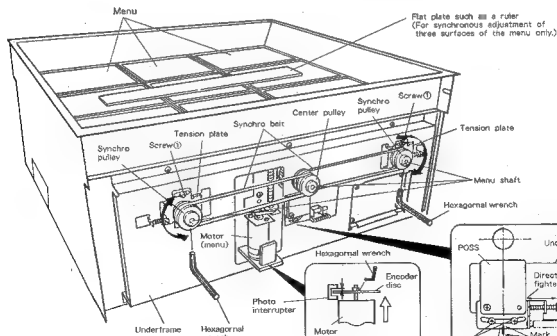


Fig. 7-1

- Adjustment of the stop position of menu rotation

PREPARATIONS

- Loosen screw ① which holds the encoder disc using a hexagonal wrench.
 - Loosen screw ② which holds the adjustment plate.
 - Adjust with the motor (menu) attached.
- (1) Set the gap between the encoder disc and photo interrupter of the motor (menu) to 1.2 mm. (Fig. 7-2)
 - (2) Fix the screw of the encoder disc by tightening with a hex wrench.
 - (3) Turn screw ③ so that the carved mark on the adjustment plate aligns with the underframe. Then temporarily tighten screw ④.
 - (4) Push the ROTATE MENU key on the front panel of the main unit so that menu rotates. Then, perform the following adjustments depending on the condition. (Fig. 7-3)
 - When the menu stops after extending the front
 - Loosen screw ④, then tighten screw ⑤ turning it clockwise.
 - When menu stops before reaching the front
 - Loosen screw ④ and turn screw ⑤ counterclockwise to loosen it.
 - (5) Turn the menu again and firmly tighten screw ④ when the menu stops directing its surfaces to the front. (Fig. 7-4 ⑥)
 - (6) Finally, turn the menu and check that the menu stops directing all of its three surfaces to the front at every 120° rotation.

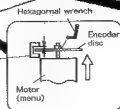


Fig. 7-2

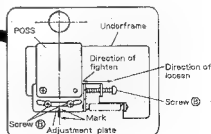


Fig. 7-3

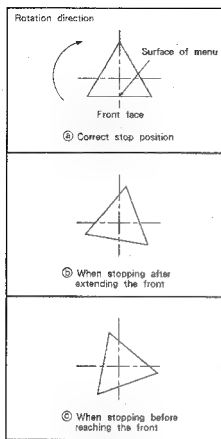


Fig. 7-4

7.1.2 CD SECTION

PREPARATIONS

• Set a magazine in the first and third modules of the CD main unit.

• Connect the remote control unit (RU-V101) to the CD main unit.

1. Rough adjustment of the select position

(1) Set the distance from the upper side of the sensor plate to that of the main chassis to 7mm by turning screw Ⓐ.

2. Adjustment of the select position

(1) First, proceed as follows.

① Press the 10keys in the sequence of [1] + [8] + STILL/STEP▶ (DISC SELECT) key + STILL/STEP◀ (DISC RETURN) key. When the operation is completed, check that the gap between the top of the rotation lever and the upper side of the sixth tray in the magazine is $0.3^{+0.2}_{-0.1}$.

② If the distance is not within the specified range, turn screw Ⓐ to adjust the position of the sensor plate and press the 10keys again in the sequence of [1] + [8] + STILL/STEP▶ (DISC SELECT) key + STILL/STEP◀ (DISC RETURN) key until the distance comes within the specified range.

③ Push the 10keys in the sequence of [6] + STILL/STEP▶ (DISC SELECT) key + STILL/STEP◀ (DISC RETURN) key and check that the gap between the top of the rotation lever and the upper side of the sixth tray in the magazine is $0.3\text{mm} \pm 0.1\text{mm}$.

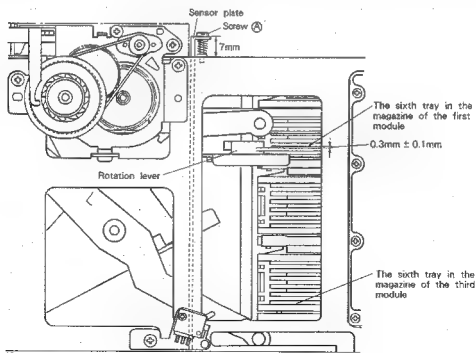


Fig. 7-5

7.2 ELECTRICAL ADJUSTMENTS

The adjustment items of this model should be performed in the order as shown below.

• Adjustment and check items

1. Tracking offset focus offset and RF offset adjustments
2. RF level adjustment
3. LD (Laser Diode) output power confirmation
4. Focus lock and spindle lock confirmation
5. Grating adjustment
6. Tracking balance adjustment
7. Tangential adjustment
8. Focus gain adjustment
9. Tracking gain adjustment
10. VCO free-run frequency adjustment
11. Method to confirm S character (FOCUS ERROR)

• Measuring Equipment

1. Dual trace oscilloscope
2. Laser power meter
3. Test disc (YEDS-7)
4. Tracking balance adjustment filter
5. Loop gain adjustment filter
6. Signal generator
7. Frequency counter
8. Other general tools
9. Remote control unit (RU-V101)

• Service Mode

The CD main unit can be operated independently when remote control unit (RU-V101) is connected to the unit.

For the operation, refer to Service manual (1) (ARP2047) : Service Mode (page 14).

Note: Before operating the remote control unit (RU-V101), move the mechanism by using the 10keys + STILL/STEP▶ (DISC SELECT) key to the position where the test disc has been placed.

• Adjustment VRs and their names

- VR1 : Laser power
- VR2 : RF offset (RF.OFS)
- VR3 : Focus gain (FCS.GAN)
- VR4 : Tracking gain (TRK.GAN)
- VR5 : Tracking balance (TRK.BAL)
- VR6 : Focus offset (FCS.OFS)
- VR7 : Tracking offset (TRK.OFS)
- VR8 : VCO adjustment (VCO.ADJ)

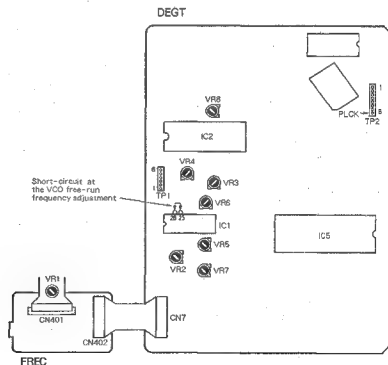
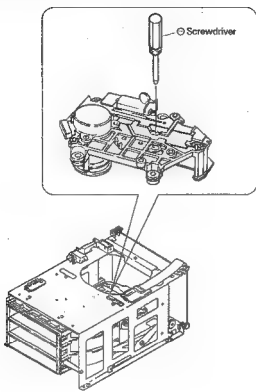
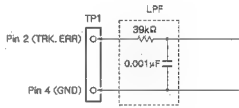


Fig. 7-6 Adjusting point

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
1	TRACKING OFFSET, FOCUS OFFSET AND RF OFFSET ADJUSTMENT					
			TP1 Pin 2 (TRK. ERR) TP1 Pin 6 (FCS. ERR) TP1 Pin 1 (RF OUTPUT)	VR5 (TRK. BAL.) VR7 (TRK. OFS) VR6 (FCS. OFS) VR2 (RF. OFS)	Tracking offset 45° 0V ± 50mV FOCUS offset 0V ± 50mV RF offset 100mV ± 50mV	<ul style="list-style-type: none">● Set to Service mode.● Turn VR5 TRK. BAL. (Tracking balance) volume clockwise 45° from the center.● Adjust with VR7 TRK. OFS (Tracking offset) volume so that the voltage of pin 2 TRK. ERR (Tracking error) of TP1 becomes 0V ± 50mV.● Adjust VR6 FCS. OFS (focus offset) so that the FCS. ERR (focus error) voltage at TP1 pin 6 becomes 0V ± 50mV.● Adjust VR2 RF. OFS (RF offset) so that the RF output voltage at TP1 pin 1 becomes 100mV ± 50mV.
2	RF LEVEL ADJUSTMENT					
			TP1 Pin 1 (RF)	VR1 Laser power	1.5Vp-p ^{+0.2V} / _{-0V}	<ul style="list-style-type: none">● Set to Service mode.● Play TEST disc and connect probe of an oscilloscope to pin 1 RF (RF output) of TP1 and measure the P-P voltage of RF waveform.● Adjust VR1 (Laser power) so that the value is within 1.5Vp-p ^{+0.2V}/_{-0V}.
3	LD (LASER DIODE) OUTPUT POWER CONFIRMATION					
					Confirmation : less than 0.13mW	<ul style="list-style-type: none">● Set to Service mode.● Press [MULTI-SPEED+] key + [0] and turn ON LD (laser diode).● Place sensor of the laser power meter immediately above the object lens and confirm that the output power of the LD is less than 0.13mW.
4	FOCUS LOCK AND SPINDLE LOCK CONFIRMATION					
	0.5V/div	100msec /div	TP1 Pin 1 (RF output)		RF output exists Normal rotation	<ul style="list-style-type: none">● Set TEST disc.● Set to Service mode.● Shift the pickup close to the center of the disc by pressing the [MULTI-SPEED+] key + [4]. * Note that this step must be performed.● Observe pin 1 RF (RF output) of TP1 with an oscilloscope and confirm that the RF signal is output after pressing the [MULTI-SPEED+] key + [1].● Press [MULTI-SPEED+] key + [2] and be sure that the disc rotates in normal direction at almost the specified speed (as it is close to the center of the disc, the rotating speed is around 300 rpm) and not rotates abnormally or inversely.

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
5 GRATING ADJUSTMENT						
						 <p>Fig. 7-7</p>
0.5V/div	5msec/div	TP1 Pin 2 (TRK. ERR)	Grating Grating	Null point Maximum amplitude		 <p>Fig. 7-8</p> <ul style="list-style-type: none"> ● Set to Service mode. ● Shift the pickup close to the center of the disc by pressing [MULTI-SPEED+] key + [4] so that the grating adjustment screw of the pickup can be seen through the oval hole of the upper side of the servo mechanism. ● Insert the ⊖ screwdriver into the adjusting hole from the upper side of the mechanism as shown in Fig. 7-7, and confirm that the grating screw turns. ● Press [MULTI-SPEED+] key + [1] and [MULTI-SPEED+] key + [2] sequentially and close the focus servo and spindle servo. (Do not close the tracking servo.) ● Observe the waveform of pin 2 TRK. ERR (Tracking error) of TP1 with an oscilloscope. At this point, insert a 4kHz cutoff low-pass filter. (Fig. 7-8)
						<ul style="list-style-type: none"> ● Turn the ⊖ screwdriver and find null point. (Photo. 7-1) ● Then, turn slowly the ⊖ screwdriver counterclockwise from the null point and adjust at the point where the waveform (Tracking error signal) firstly becomes maximum amplitude. (See Photo. 7-2.) <p>Note :</p> <ul style="list-style-type: none"> ■ If the ⊖ screwdriver is pressed strongly, the pickup moves toward disc center, accordingly adjustment becomes difficult. ● Finally, be sure to confirm that the tracking error signal (at this time, 4kHz of cutoff low-pass filter is not inserted) when the pickup is moved toward the disc center and the P-P voltage of the tracking error signal at the outer circumference of the disc are not varied greatly. When the level is deviated over ±10%, adjust again by turning grating screw to the maximum error amplitude point.

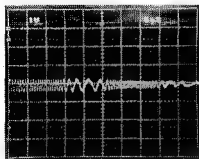


Photo. 7-1
Null point

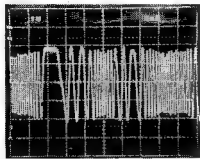


Photo. 7-2
Maximum amplitude

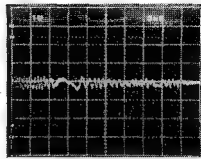
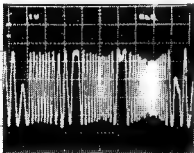
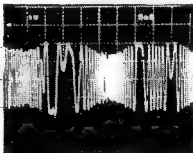


Photo. 7-3
This is not the null-point waveform

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
6 TRACKING BALANCE ADJUSTMENT						
	0.5V/div	5msec /div	TP1 Pin II (TRK. ERR)	VR5 (TRK. BAL)	(TRK. ERR)	<ul style="list-style-type: none">● Set the TEST disc.● Set to Service mode.● Shift the carriage close to the center of the disc by pressing [MULTI-SPEED+] key + [4].● Press [MULTI-SPEED+] key + [1] and [MULTI-SPEED+] key + [2] to start turning the disc.● Observe pin 2 TRK. ERR (Tracking error) of TP1 with an oscilloscope and adjust with VR5 TRK. BAL (Tracking balance) volume so that the DC component of the tracking error disappears. <p>Note: Before proceeding with the above adjustments, be sure to adjust the tracking error offset.</p>
<div><div><p>A ≠ B</p></div><div><p>A = B</p></div></div> <p>Photo. 7-4 DC elements mixed in signal</p> <p>Photo. 7-5 DC elements eliminated</p>						

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
7	TANGENTIAL ADJUSTMENT					
		200nsec /div	TP1 Pin 1 (RF output)	Tangential adjustment screw	Best eye pattern	<ul style="list-style-type: none"> ● Set the TEST disc. ● Set to Service mode. ● Shift the pickup close to the center of the disc by pressing [MULTI-SPEED+] key + [4]. ● Press [MULTI-SPEED+] key + [1], [MULTI-SPEED+] key + [2] and [MULTI-SPEED+] key + [3] sequentially, and close all the servos. (Pause indicator lights up.) ● Observe pin 1 RF (RF output) of TP1 with an oscilloscope and adjust with the tangential screw so that the eye pattern becomes clear. (Fig. 7-9 and 7-10) ● The adjusting point is the middle point between the point where the eye pattern becomes deteriorate by turning the tangential screw clockwise and the point where the eye pattern becomes deteriorate by turning the tangential screw counterclockwise. As a criterion, observe that the overall waveform is clear and one of the diamond shapes within the eye pattern (Photo. 7-7), and adjust at as an optimum point where the diamond shape is seen relatively fine line.

Fig. 7-9

Note : During the adjustment, hold hexagonal wrench to upward so as to keep the pickup body not goes down.

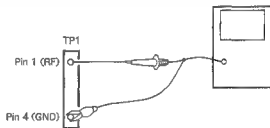
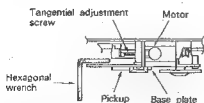


Fig. 7-9

Note : During the adjustment, hold hexagonal wrench to upward so as to keep the pickup body not goes down.



In the figure below, the top and bottom is opposite to that of the actual product.

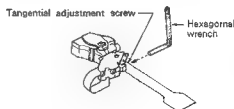


Fig. 7-10 Tangential adjustment

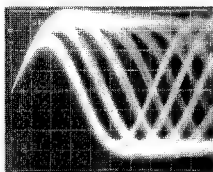


Photo. 7-6

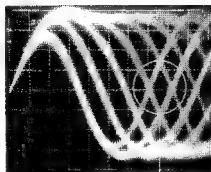


Photo. 7-7

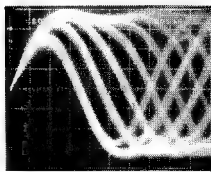
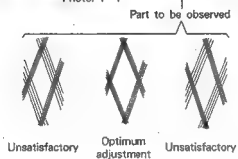
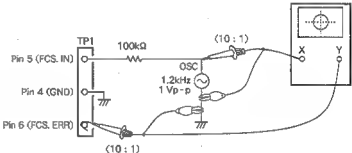


Photo. 7-8



Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
II FOCUS GAIN ADJUSTMENT						
	20mV/div, 5mV/div. CH1 (X), CH2 (Y) (Probe 10 : 1)	X axis : TP1 Pin 5 (FCS. IN) Y axis : TP1 Pin 6 (FCS. ERR)	VR3 (PCS. GAN)	Phase difference 90°	<ul style="list-style-type: none">● In the POWER OFF state, connect an oscilloscope and oscillator as shown in Fig. 7-11.● Set the unit to the normal PLAY mode.● Turn the POWER of oscillator ON and output 1.2kHz 1Vp-p. <p>Note : Depending upon oscillators, some of them output DC when their power turned ON. Therefore, it is desirable to connect oscillator after turning the power ON.</p> <ul style="list-style-type: none">● Adjust with VR3 FCS. GAN (Focus gain) volume so that the lissajous figure of the oscilloscope becomes horizontal circle (Phase difference 90°). <div></div> <p style="text-align: center;">Fig. 7-11</p>	

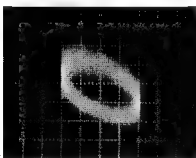


Photo. 7-9
Gain overcompensated

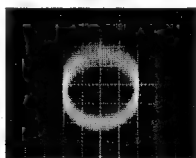


Photo. 7-10
Gain optimum

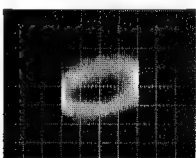
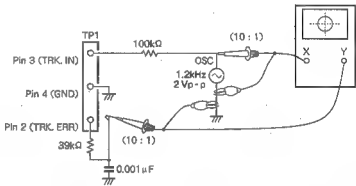
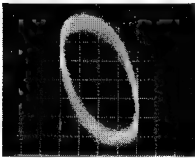
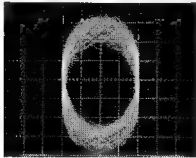
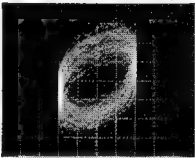


Photo. 7-11
Gain undercompensated

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/Adjustment specifications	Adjustment procedure
	V	H				
■ TRACKING GAIN ADJUSTMENT						
	50mV/div, 5mV/div, CH1 (X), CH2 (Y) (Probe 10 : 1)	X axis : TP1 Pin 3 (TRK, IN) Y axis : TP1 Pin 2 (TRK, ERR)	VR4 (TRK, GAN)	Phase difference 90°	<ul style="list-style-type: none">● In the POWER OFF state, connect an oscilloscope and oscillator as shown in Fig. 7-12.● Set the unit to the normal PLAY mode.● Turn the POWER of oscillator ON and output 1.2kHz 2Vp-p. <p>Note: Depending upon oscillators, some of them output DC when their power turned ON. Therefore, it is desirable to connect oscillator after turning the power ON.</p> <ul style="list-style-type: none">● Adjust with VR4 TRK, GAN (Tracking gain) volume so that the lissajous figure of the oscilloscope becomes horizontal circle (phase difference 90°). <div></div> <p style="text-align: center;">Fig. 7-12</p>	
<div><div><p>Photo. 7-12 Gain overcompensated</p></div><div><p>Photo. 7-13 Gain optimum</p></div><div><p>Photo. 7-14 Gain undercompensated</p></div></div>						

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
10	VCO FREE RUN FREQUENCY ADJUSTMENT					
			TP2 Pin 8 (PLCK)	VR8 (VCO. ADJ)	4.275 ± 0.01MHz	<ul style="list-style-type: none">● Set to Service mode.● Short-circuit between pin 25 and pin 26 of IC1 in the DEGT assembly with ⊖ screwdriver, etc. (Fig. 7-6)● Connect frequency counter, which is measurable over 10MHz, to pin 8 of TP2 (PLCK).● Adjust with VR8 VCO. ADJ (VCO adjustment) volume so that the value of frequency counter becomes 4.275 ± 0.01MHz.
11	METHOD TO CONFIRM S CHARACTER (FOCUS ERROR)					
			TP1 Pin 6 (FCS.ERR)			<ul style="list-style-type: none">● Set to Service mode.● Short-circuit between pin 5 FCS.IN (Focus in) of TP1 and GND.● Press [MULTI-SPEED+] key + [] and observe the waveform of pin 6 FCS.ERR (Focus error) of TP1 at that time with an oscilloscope.

Photo. 7-15 Focus error

7. RÉGLAGES

7.1 RÉGLAGES MECANIQUE

7.1.1 SECTION PRINCIPALE

- Réglages synchronisés de trois surfaces du menu (Fig. 7-1)

PRÉPARATIFS

- Ajuster sans installer le moteur (menu).
- Fixer la poulie centrale à l'arbre de menu à l'aide des vis.

- (1) Placer des ceintures de synchronisation entre la poulie centrale et les poulies de synchronisation droite et gauche.
- (2) Tout en appliquant une tension sur le châssis et la plaquette de tension, tirer sur la ceinture de synchronisation.
- (3) Fixer la plaquette de tension au châssis avec une vis ①.
- (4) Tout en plaçant une plaquette plate tel qu'une règle entre les surfaces du menu, les aligner au même niveau.
- (5) Fixer l'arbre de menu à la poulie de synchronisation en utilisant la clé hexagonale.
- (6) Retirer la plaquette placée dans le menu et vérifier les points suivants en tournant le menu à la main.
 1. Vérifier que les trois surfaces du menu pivotent de façon régulière.
 2. Vérifier que les trois surfaces sont alignées au même niveau après une rotation de l'arbre du menu.

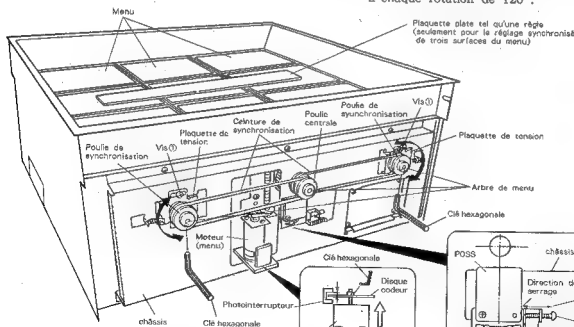


Fig. 7-1

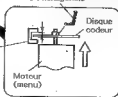


Fig. 7-2

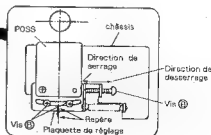


Fig. 7-3

- Réglage de la position d'arrêt de la rotation du menu

PRÉPARATIFS

- Desserrer la vis ② maintenant le disque codeur en utilisant la clé hexagonale.
- Desserrer la vis ③ maintenant la plaquette de réglage.
- Ajuster avec le moteur (menu) joint.

- (1) Régler le jeu entre le disque codeur et la photointerrupteur du moteur (menu) à 1.5 mm. (Fig. 7-2)

- (2) Fixer la vis du disque codeur en la serrant à l'aide d'une clé hexagonale.

- (3) Tourner la vis ④ de manière à ce que le repère ciselé sur la plaquette de réglage soit alignée avec le châssis. Puis, serrer temporairement la vis ④.

- (4) Pousser la touche ROTATE MENU sur le panneau avant de l'appareil principal de manière à faire tourner le menu. Effectuer, ensuite, les réglages suivants en fonction des conditions. (Fig. 7-3)

- Lorsque le menu s'arrête en dépassant l'avant Desserrer la vis ④, puis serrer la vis ④ en la tournant dans le sens des aiguilles d'une montre.

- Lorsque le menu s'arrête avant d'atteindre l'avant Desserrer la vis ④, puis tourner la vis ④ dans le sens contraire des aiguilles d'une montre pour la desserrer.

- (5) Tourner le menu de nouveau, et serrer fermement la vis ④ lorsqu'il s'arrête en dirigeant ses surfaces vers l'avant. (Fig. 7-4 ③)

- (6) Finalement, tourner le menu et vérifier qu'il s'arrête en dirigeant toutes ses trois surfaces vers l'avant à chaque rotation de 120°.

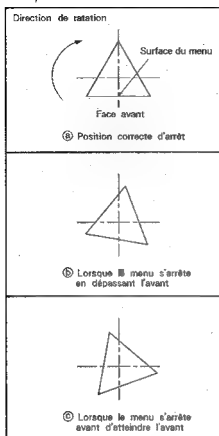


Fig. 7-4

7.1.2 SECTION CD

PRÉPARATIFS

- Mettre un magasin dans les première et sixième modules de l'appareil principal CD.
- Brancher la télécommande RU-V101 sur l'appareil principal CD.

1. Réglage approximatif de la position de sélection
 - (1) Régler le jeu entre le côté supérieur de la plaquette de détecteur et celui du châssis principal à 7 mm en serrant le vis (A).
 2. Réglage de la position de sélection
 - (1) Procéder comme suit :
 - ① Appuyer sur les touches par ordre [1] + [8] + STILL/STEP (DISC SELECT) + STILL/STEP (DISC RETURN). Après cette opération, vérifier que le jeu entre le haut du levier de rotation et le côté supérieur du sixième plateau dans le magasin est de 0.3 ± 0.2 .
 - ② Si le jeu est hors de la gamme spécifiée, tourner le vis (A) pour régler la position de la plaquette de détecteur, et appuyer de nouveau sur les touches par ordre [1] + [8] + STILL/STEP (DISC SELECT) + STILL/STEP (DISC RETURN) de façon que le jeu soit dans la gamme spécifiée.
 - ③ Appuyer sur les touches par ordre [6] + STILL/STEP (DISC SELECT) + STILL/STEP (DISC RETURN), et vérifier que le jeu entre le haut du levier de rotation et le côté supérieur du sixième plateau dans le magasin est de $0.3 \text{ mm} \pm 0.1 \text{ mm}$.

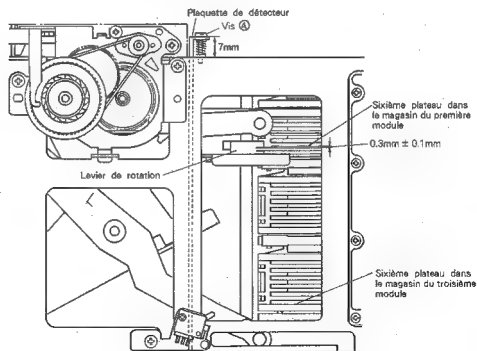


Fig. 7-5

7.2 RÉGLAGES ELECTRIQUES

Les réglages pour ce modèle doivent être réalisés dans l'ordre indiqué ci-dessous.

• Réglages et vérifications à effectuer

1. Réglages de l'offset de centrage de piste, de l'offset de focalisation et de l'offset RF.
2. Réglage du niveau RF
3. Vérification de la puissance de sortie de la diode laser (LD)
4. Vérification du verrouillage de focalisation et du verrouillage de moyen
5. Réglage du réseau
6. Réglage de l'équilibrage de centrage de piste
7. Réglage tangentiel
8. Réglage du gain de focalisation
9. Réglage du gain de centrage de piste
10. Réglage de la fréquence propre du VCO
11. Méthode de contrôle de la caractéristique S (erreur de focalisation)

• Matériel de mesure

1. Oscilloscope double trace
2. Appareil de mesure pour puissance laser
3. Disque d'essai (YEDS-7)
4. Filtre de réglage pour équilibrage de centrage de piste
5. Filtre de réglage pour gain de boucle
6. Générateur de signal
7. Fréquencemètre
8. Outillage général divers
9. Télécommande (RU-V101)

• Mode d'entretien

L'appareil principal CD peut être fonctionné indépendamment quand la télécommande RU-V101 est branchée sur l'appareil. Pour les détails sur le fonctionnement, voir "Mode d'entretien" (page 14) du manuel d'entretien (1) (ARP2047).

Remarque :

Avant le fonctionnement avec la télécommande RU-V101, déplacer le mécanisme à la position où le disque d'essai est placé en appuyant sur une des touches numériques et la touche STILL/STEP▶ (DISC SELECT).

• Dispositifs d'ajustement et no nomenclature

- VR1 : Puissance laser
 VR2 : Offset RF (RF.OFS)
 VR3 : Gain de focalisation (FCS.GAN)
 VR4 : Gain de centrage de piste (TRK.GAN)
 VR5 : Equilibrage de centrage de piste (TRK.BAL)
 VR6 : Décalage de focalisation (FCS.OFS)
 VR7 : Décalage de centrage de piste (TRK.OFS)
 VR8 : Réglage du VCO (VCO.ADJ)

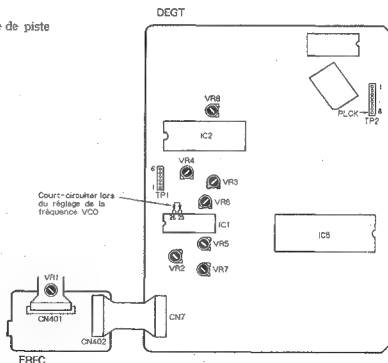
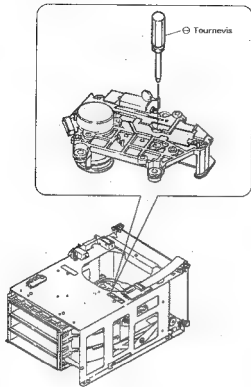
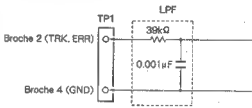


Fig. 7-6 Point de réglage

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle / spécifications de réglage	Méthode de réglage
	V	H				
1	RÉGLAGES DE L'OFFSET DE CENTRAGE DE PISTE, DE L'OFFSET DE FOCALISATION ET DE L'OFFSET RF					
			TP1 Broche 2 (TRK. ERR)	VR5 (TRK. BAL) VR7 (TRK. OFS)	Offset de centrage de piste 45° 0V ± 50mV	<ul style="list-style-type: none">● Régler le mode d'essai (TEST).● Tourner le potentiomètre VR5 TRK. BAL (équilibre de centrage de piste) de 45° depuis le centre dans le sens des aiguilles d'une montre.● Ajuster le potentiomètre VR7 TRK. OFS (décalage de centrage de piste) de façon à ce que la tension à la broche 2 TRK. ERR (erreur de centrage de piste) de TP1 devienne égale à 0V ± 50 mV.
			TP1 Broche 6 (FCS. ERR)	VR6 (FCS. OFS)	Offset de focalisation 0V ± 50mV	<ul style="list-style-type: none">● Régler VR6 FCS. OFS (offset de focalisation) de manière à ce que la tension de FCS. ERR (erreur de focalisation) relevée sur la broche 6 de TP1 soit de 0V ± 50 mV.
			TP1 Broche 1 (RF OUTPUT)	VR2 (RF. OFS)	Offset RF 100mV ± 50mV	<ul style="list-style-type: none">● Régler VR2 RF. OFS (offset RF) de manière à ce que la tension de RF OUTPUT (sortie RF) relevée sur la broche 1 de TP1 soit de 100 mV ± 50 mV.
2	RÉGLAGE DU NIVEAU RF					
			TP1 Broche 1 (RF)	VR1 Puissance laser	1.5 Vc-c $\pm 0.2V$ -0V	<ul style="list-style-type: none">● Régler le mode d'essai (TEST).● Reproduire le disque d'essai (TEST) et raccorder la sonde d'un oscilloscope à la broche 1 RF (sortie RF) de TP1 et mesurer la tension C-C de la forme d'onde RF.● Régler VR1 (puissance laser) de façon que la tension soit de 1.5 Vc-c $\pm 0.2V$.
3	VÉRIFICATION DE LA PUISSANCE DE SORTIE DE LA DIODE LASER (LD)					
					Confirmation : moins de 0,13mW	<ul style="list-style-type: none">● Régler le mode d'essai (TEST).● Appuyer sur la touche de centrage de piste arrière [MULTI-SPEED+] + [0] et enclencher la diode laser (LD).● Placer la capteur de l'instrument destiné à mesurer la puissance laser au dessus de l'objectif et vérifier que la puissance de sortie de la diode laser (LD) est inférieure à 0.13 mW.
4	VÉRIFICATION DU VERROUILLAGE DE FOCALISATION ET DU VERROUILLAGE DE MOYEU					
	0.5V/div	100msec /div	TP1 Broche 1 (Sortie RF)	Présence de sortie RF Rotation normale		<ul style="list-style-type: none">● Mettre en place le disque d'essai (TEST).● Régler le mode d'essai (TEST).● Déplacer la tête de lecture à proximité du centre du disque en appuyant sur la touche de recherche [MULTI-SPEED+] + [4].* Cette étape doit absolument être réalisée.● Observer le signal RF à la broche 1 de TP1 (sortie RF) au moyen d'un oscilloscope et vérifier que le signal RF sorte après l'enfoncement de la touche d'avance de piste [MULTI-SPEED+] + [1].● Appuyer sur la touche de lecture [MULTI-SPEED+] + [2] et s'assurer que le disque tourne en sens normal avec approximativement la vitesse spécifiée (étant près du centre du disque, la vitesse de rotation est d'environ 300 tr/mn), sans anomalie ni inversion du sens de rotation.

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle / spécifications de réglage	Méthode de réglage
	V	H				
5	RÉGLAGE DU RÉSEAU					
						<ul style="list-style-type: none"> ● Régler le mode d'essai (TEST). ● Amener la tête de lecture à proximité du centre du disque en appuyant sur la touche de recherche manuelle avant [MULTI-SPEED-1] et [4], de façon à ce que la vis de réglage du réseau de la tête de lecture puisse être vue à travers le trou oval situé à la partie supérieure de l'asservissement. ● Insérer un ⊖ tournevis dans le trou de réglage depuis la partie supérieure du mécanisme, comme illustré à la figure 7-7, puis vérifier que la vis de réseau tourne. ● Appuyer séquentiellement sur les touches de piste avant [MULTI-SPEED-1] et [1] et [MULTI-SPEED-1] et [2], et fermer les asservissements de focalisation et de moyen. (Ne pas fermer l'asservissement de centrage de piste.) ● Observer la forme d'onde à la broche 2 TRK.ERR (erreur de centrage de piste) de TP1 au moyen d'un oscilloscope. Introduire alors un filtre de coupure passe-bas 4 kHz. (Fig. 7-8)
						<p>Fig. 7-8</p>
0,5V/div	5msec/div	TP1 Broche 2 (TRK. ERR)	Réseau Réseau	Point zéro Amplitude maximum	<ul style="list-style-type: none"> ● Faire tourner un ⊖ tournevis et rechercher le point zéro. (Photo 7-1) ● Tourner ensuite lentement dans le sens contraire des aiguilles d'une montre le ⊖ tournevis depuis le point zéro et l'ajuster sur le point où la forme d'onde (signal d'erreur de centrage de piste) présente une première amplitude maximum. (Voir photo 7-2) <p>Note :</p> <p>Si le ⊖ tournevis est appuyé avec force, la tête de lecture se déplace vers le centre du disque et le réglage devient difficile à effectuer.</p> <ul style="list-style-type: none"> ● Finalement, s'assurer que le signal d'erreur de centrage de piste (cette fois-ci le filtre de coupure passe-bas à 4kHz n'est pas introduit) n'a pas beaucoup varié lorsque la tête de lecture est déplacée vers le centre du disque, et aussi que la tension C-C du signal de centrage de piste n'a pas non plus beaucoup varié sur la circonférence extérieure du disque. Lorsque le niveau varie de plus de ±10%, recommencer le réglage en tournant la vis de réseau jusqu'au point d'amplitude d'erreur maximum. 	

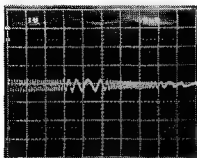


Photo. 7-1
Point nul

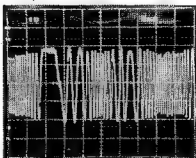


Photo. 7-2
Amplitude maximale

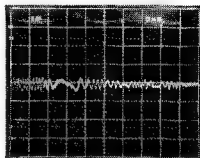
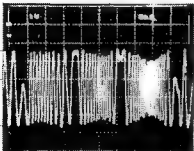
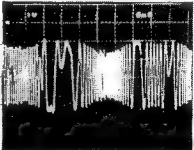
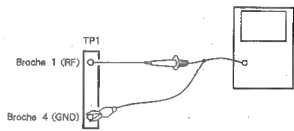


Photo. 7-3
Ceci n'est pas la forme d'onde du point nul

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle / spécifications de réglage	Méthode de réglage
	V	H				
6 RÉGLAGE DE L'EQUILIBRAGE DE CENTRAGE DE PISTE						
	0,5V/div	5msec /div	TP1 Broche 2 (TRK. ERR)	VR5 (TRK. BAL.)	TRK, ERR	<ul style="list-style-type: none">● Mettre en place le disque d'essai (TEST).● Régler le mode d'essai (TEST).● Amener la tête de lecture à proximité du centre du disque en appuyant sur la touche de recherche manuelle avant [MULTI-SPEED+] + [4].● Appuyer sur la touche de piste avant [MULTI-SPEED+] + [1] et sur la touche de lecture [MULTI-SPEED+] + [2] pour faire tourner le disque.● Observer la broche 2 TRK. ERR (erreur de centrage de piste) de TP1 au moyen d'un oscilloscope et ajuster au moyen de potentiomètre VR5 TRK. BAL (équilibrage de centrage de piste) de façon que la composante continue de l'erreur de centrage de piste disparaisse. <p>Note: Avant de procéder aux ajustements ci-dessus, veiller à régler le décalage d'erreur de piste.</p>
<div><div><p>A ≠ B</p></div><div>➡</div><div><p>A = B</p></div></div> <div><p>Photo. 7-4 Éléments CC mêlés au signal</p><p>Photo. 7-5 Éléments CC éliminés</p></div>						

Pas No.	Réglage de l'oscilloscope		Points d'essai	Pointe de réglage	Points de contrôle /spécifications de réglage	Méthode de réglage
	V	H				
7	RÉGLAGE TANGENTIEL					
		200nsec /div	TP1 Broche 1 (sortie RF)	Vis de réglage tangentiel	Mire Best Eye	<ul style="list-style-type: none"> ● Mettre en place le disque d'essai (TEST) ● Régler le mode d'essai (TEST). ● Amener la tête de lecture à proximité du centre du disque en appuyant sur la touche de recherche manuelle avant [MULTI-SPEED++][4]. ● Appuyer séquentiellement sur les touches d'avance de piste [MULTI-SPEED++][1], [MULTI-SPEED++][2] et [MULTI-SPEED++][3], et fermer tous les asservissements. (Le voyant de pause s'allume.) ● Observer le signal RF à la broche 1 (sortie RF) de TP1 au moyen d'un oscilloscope et régler au moyen de la vis tangentielle, de façon à ce que la mire Best Eye devienne claire. (Fig. 7-9 et 7-10) ● Le point de réglage se situe au milieu entre le point où la mire se détériore en tournant la vis tangentielle dans le sens des aiguilles d'une montre et le point où la mire se détériore en tournant la vis tangentielle dans le sens inverse des aiguilles d'une montre. Comme critère, observer que la forme d'onde globale soit claire et que l'une des formes de losange se situe dans la mire (Photo 7-7) ; réaliser le réglage en un point optimum où la forme de losange apparaît avec des traits relativement fins.
						 <p>Fig. 7-9</p> <p>Note : Pendant le réglage, tenir la clef six-pans vers le haut de façon à ce que le corps de la tête de lecture ne descende pas.</p>

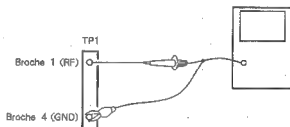
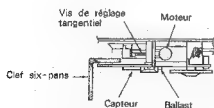


Fig. 7-9

Note : Pendant le réglage, tenir la clef six-pens vers le haut de façon à ce que le corps de la tête de lecture ne descende pas.



Dans l'illustration ci-dessous, le dessus et le dessous de l'appareil sont en réalité à l'envers.

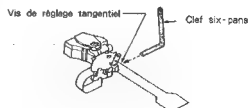


Fig. 7-10 Réglage tangentiel

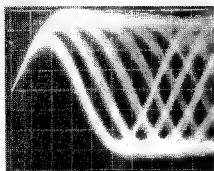


Photo. 7-6

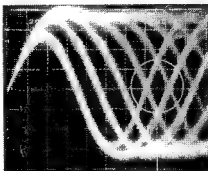


Photo. 7-7

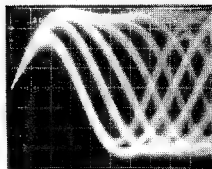
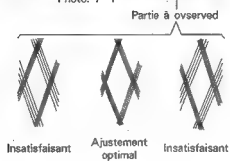


Photo. 7-8



Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle / spécifications de réglage	Méthode de réglage
	V	H				
8 RÉGLAGE DU GAIN DE FOCALISATION						
	20mV/div, 5mV/div, Canal 1 (X), Canal 2 (Y) (Sonde 10 : 1)		Axe X : TP1 Broche 5 (FCS.IN) Axe Y : TP1 Broche 6 (FCS.ERR)	VR3 (FCS.GAN)	Différence de phase 90°	<ul style="list-style-type: none"> ● L'alimentation étant coupée (POWER OFF), raccorder un oscilloscope et un oscillateur de la manière indiquée à la figure 7-11. ● Régler l'appareil en mode de lecture normale. ● Enclencher l'alimentation de l'oscillateur et délivrer un signal de 1,2kHz à 1Vc-c. <p>Note: En fonction de l'oscillateur utilisé, certains appareils fournissent un courant continu lors de leur enclenchement. Par conséquent, il est préférable de raccorder l'oscillateur après avoir enclenché son alimentation.</p> <ul style="list-style-type: none"> ● Ajuster le potentiomètre VR3 FCS.GAN (gain de focalisation) de façon à ce que la figure de Lissajou observée sur l'oscilloscope devienne un cercle horizontal (déphasage 90°).

Fig. 7-11

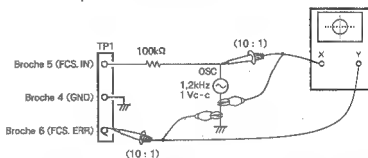


Fig. 7-11

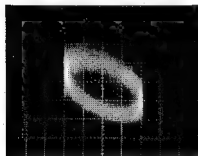


Photo. 7-9
Gain sur-compensé

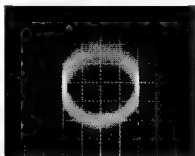


Photo. 7-10
Gain optimal

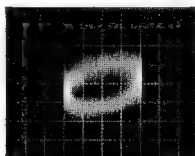


Photo. 7-11
Gain sous-compensé

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle / spécifications de réglage	Méthode de réglage
	V	H				
II RÉGLAGE DU GAIN DE CENTRAGE DE PISTE						
	50mV/div. 5mV/div. Canal 1 (X). Canal 2 (Y) (Sonde 10:1)		Axe X : TP1 Broche 3 (TRK.IN) Axe Y : TP1 Broche 2 (TRK.ERR)	VR4 (TRK.GAN)	Déphasage 90°	<ul style="list-style-type: none"> ● L'alimentation étant coupée (POWER OFF), raccorder un oscilloscope et un oscillateur de la manière indiquée à la figure 7-12. ● Régler l'appareil en mode de lecture normale. ● Enclencher l'alimentation de l'oscillateur et fournir un signal de 1,2kHz à 2Vc-c. <p>Note : En fonction de l'oscillateur utilisé, certains appareils fournissent un courant continu lors de leur enclenchement. Par conséquent, il est préférable de raccorder l'oscillateur après avoir enclenché son alimentation.</p> <ul style="list-style-type: none"> ● Ajuster le potentiomètre VR4 TRK GAN (gain de centrage de piste) de façon à ce que la figure de Lissajou sur l'oscilloscope devienne un cercle horizontal (déphasage 90°).

Fig. 7-12

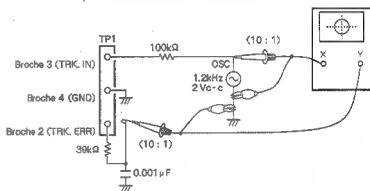


Fig. 7-12

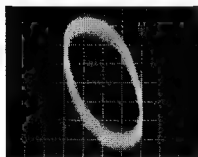


Photo. 7-12
Gain sur-compensé

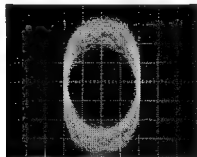


Photo. 7-13
Gain optimal

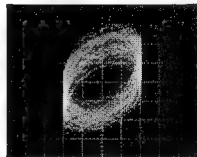


Photo. 7-14
Gain sous-compensé

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle /spécifications de réglage	Méthode de réglage
	V	H				
10	RÉGLAGE DE LA FRÉQUENCE PROPRE DU VCO					
			TP2 Broche 8 (PLCK)	VR8 (VCO. ADJ)	4,275 ± 0,01MHz	<ul style="list-style-type: none">● Régler le mode d'essai (TEST).● Court-circuiter entre broches 25 et 26 de l'IC1 dans l'assemblage DEGT à l'aide d'un ⊖ tournevis.● Reconnaitre un fréquencemètre capable de mesurer au-dessus de 10 MHz à la broche 8 de TP2 (PLCK).● Ajuster le potentiomètre VR8 VCO ADJ (réglage du VCO) de façon à ce que la valeur indiquée par le fréquencemètre devienne égale à 4,275 ± 0,01MHz.
11	MÉTHODE DE CONTRÔLE DE LA CARACTÉRISTIQUE S (ERREUR DE FOCALISATION)					
			TP1 Broche 6 (FCS. ERR)			<ul style="list-style-type: none">● Régler le mode d'essai (TEST).● Réaliser un court-circuit entre la broche 5 FCS.IN (entrée de focalisation) de TP1 et la terre GND.● Appuyer sur la touche d'avance de piste ←MULTI-SPEED→+II et observer simultanément la forme d'onde à la broche 6 FCS.ERR (erreur de focalisation) de TP1 au moyen d'un oscilloscope.

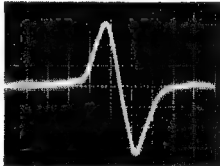


Photo. 7-15 Erreur de mise au point

7. AJUSTES

7.1 AJUSTES MECÁNICOS

7.1.1 SECCIÓN PRINCIPAL

• Tres lados de ajuste sincrónico del menú (Fig. 7-1)

PREPARATIVOS

- Ajuste sin instalar el motor (menú).
- Fije la polea central al eje del menú con los tornillos.

- (1) Aplique la correa de sincronización entre la polea de sincronización y la polea central en ambos lados, derecho e izquierdo.
 - (2) Aplicando resorte (tensión) al armazón inferior y la placa tensora, aplique tensión a la correa de sincronización.
 - (3) Fije la placa tensora en el armazón inferior con un tornillo ①.
 - (4) Colocando una placa plana, como una regla, entre ellas, alinee las tres superficies del menú entre sí de forma que queden al mismo nivel.
 - (5) Fije el eje de menú en la polea de sincronización empleando una llave hexagonal.
 - (6) Extraiga la placa colocada sobre el menú y compruebe los ítems siguientes girando manualmente el menú.
1. Compruebe si las tres superficies del menú giran sin interrupción brusca.
 2. Compruebe si todas las tres superficies del menú alineen entre sí de forma que queden al mismo nivel después de girar el eje del menú una vez.

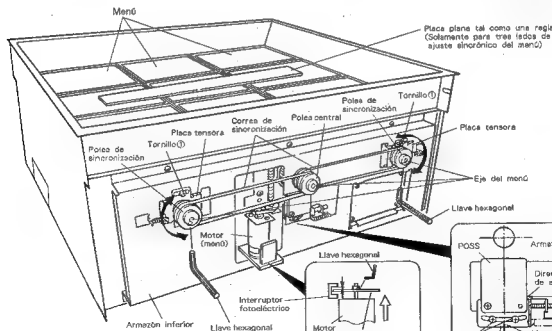


Fig. 7-1

• Ajuste de la posición de parada de la rotación del menú PREPARATIVOS

- Afloje el tornillo ④ que sostiene el disco decodificador con una llave hexagonal.

- Afloje el tornillo ⑤ que sostiene la placa de ajuste.
- Ajuste con el motor (menú) instalado.

- (1) Ajuste la separación entre el disco decodificador y el interruptor fotoeléctrico del motor (menú) a $1\frac{1}{16}$ mm. (Fig. 7-2)
 - (2) Fije el tornillo del disco decodificador apretándolo con una llave hexagonal.
 - (3) Gire el tornillo ③ de forma que la marca grabada en la placa de ajuste quede alineada con el armazón inferior. Después apriete temporalmente el tornillo ④.
 - (4) Presione la tecla ROTATE MENU del panel frontal de la unidad principal para que el menú gire. Después realice los ajustes siguientes dependiendo de la condición. (Fig. 7-3)
- Cuando el menú se pare después de haber pasado la parte frontal
 - Afloje el tornillo ④ y apriete el tornillo ⑤ girándolo hacia la derecha.
 - Cuando el menú se pare antes de llegar a la parte frontal
 - Afloje el tornillo ④ y gire el tornillo ⑤ hacia la izquierda para aflojarlo.
- (5) Vuelva a girar el menú y apriete firmemente el tornillo ④ cuando el menú se pare dirigiendo sus superficies hacia la parte frontal. (Fig. 7-4 ⑥)
 - (6) Finalmente, gire el menú y compruebe si se para dirigiendo sus tres superficies hacia la parte frontal cada 120° de rotación.

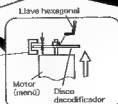


Fig. 7-2

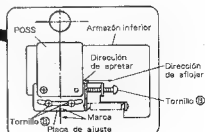


Fig. 7-3

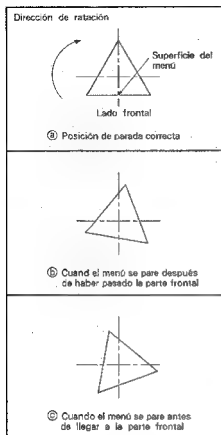


Fig. 7-4

7.1.2 SECCIÓN DE CD

PREPARATIVOS

- Coloque el cargador en el primer y tercer módulo de la unidad principal de CD.
- Conecte el telemando (RU-V101) a la unidad principal de CD.

1. Ajuste aproximado de la posición seleccionada
 - (1) Ajuste la distancia entre la parte superior de la placa de sensor y la del chasis principal a 7 mm girando el tornillo (A).
 2. Ajuste de la posición seleccionada
 - (1) Primero, realice el procedimiento siguiente.
 - ① Presione las teclas en el orden de [1] + [8] + STILL / STEP ► (DISC SELECT) + STILL / STEP ◀ (DISC RETURN). Cuando termine la operación, compruebe si la separación entre la parte superior de la palanca de rotación y la de la sexta bandeja en el cargador es $0,3^{+0,2}_{-0,1}$ mm.
 - ② Si la separación excede a la gama especificada, gire el tornillo (A) para ajustar la posición de la placa de sensor y vuelva a presionar las teclas en el orden de [1] + [8] + STILL / STEP ► (DISC SELECT) + STILL / STEP ◀ (DISC RETURN) hasta que la separación se vuelva dentro de la gama especificada.
 - ③ Presione las teclas en el orden de [6] + STILL / STEP ► (DISC SELECT) + STILL / STEP ◀ (DISC RETURN) y compruebe si la separación entre la parte superior de la palanca de rotación y la de la sexta bandeja en el cargador es $0,3\text{mm} \pm 0,1\text{mm}$.

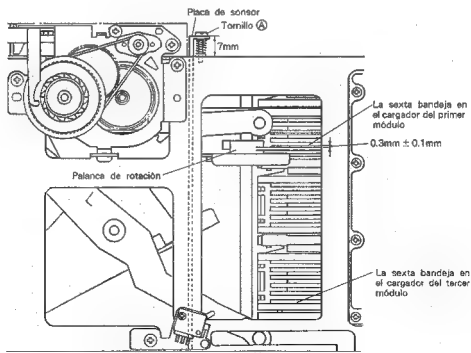


Fig. 7-5

7.2 AJUSTES ELECTRICOS

Los items de ajuste de este modelo deberán ser efectuados en el orden mostrado abajo.

• Items de ajuste y comprobación

1. Ajuste de desviación de seguimiento, foco y RF.
2. Ajuste del nivel de RF
3. Confirmación de la alimentación de salida de LD (diodo láser)
4. Confirmación de enclavamiento del enfoque y del eje
5. Ajuste del retículo
6. Ajuste del equilibrio de seguimiento
7. Ajuste tangencial
8. Ajuste de la ganancia de enfoque
9. Ajuste de la ganancia de seguimiento
10. Ajuste de la frecuencia propia de VCO
11. Método para confirmar el carácter S (error de enfoque)

• Equipo de medición

1. Osciloscopio de doble traza
2. Medidor de alimentación del láser
3. Disco de prueba (YEDS-7)
4. Filtro de ajuste de equilibrio de seguimiento
5. Filtro de ajuste de ganancia de bucle
6. Generador de señal
7. Contador de frecuencia
8. Otras herramientas generales
9. Telemando (RU-V101)

• Modo de operación

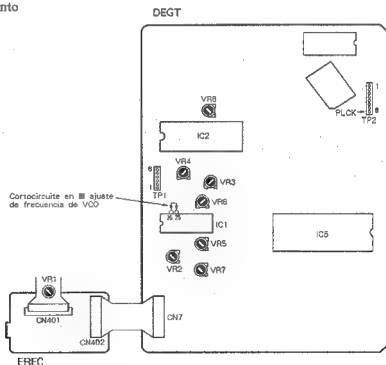
Si conecta el telemando (RU-V101) a la unidad principal de CD, podrá operarla a distancia.

Con respecto a la operación refiérase al manual de operación (1). (ARP2047): Modo de operación (página 14)

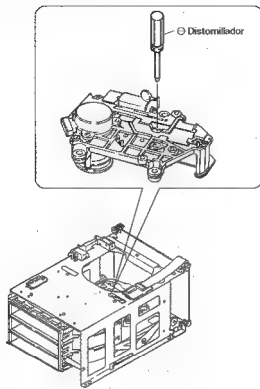
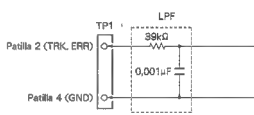
Nota: Antes de operar el telemando (RU-V101), mueva el mecanismo con las teclas numéricas + teclas STILL/STEP (DISC SELECT) hasta la posición donde se ha colocado el disco de prueba.

• Torres variables (VR) de ajuste y sus nombres

- VR1: Alimentación del láser
- VR2: Compensación de RF (RF.OFS)
- VR3: Ganancia de enfoque (FCS.GAN)
- VR4: Ganancia de seguimiento (TRK.GAN)
- VR5: Equilibrio de seguimiento (TRK.BAL)
- VR6: Desviación de enfoque (FCS.OFS)
- VR7: Desviación del seguimiento (TRK.OFS)
- VR8: Ajuste de VCO (VCO.ADJ)



No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
1	AJUSTES DE LA DESVIACIÓN DE SEGUIMIENTO, FOCO Y RF					
			Patilla 2 de TP1 (TRK. ERR) Patilla 6 de TP1 (FCS. ERR) Patilla 1 de TP1 (RF OUTPUT)	VR5 (TRK. BAL) VR7 (TRK. OFS) VR6 (FCS. OFS) VR2 (RF. OFS)	Desviación de seguimiento 45° 0V ± 50mV Compens. de foco 0V ± 50mV Compens. de RF 100mV ± 50mV	<ul style="list-style-type: none">● Ajuste el modo de TEST.● Gire el volumen de TRK. BAL (Equilibrio de seguimiento) de VR5 en el sentido de las manecillas del reloj 45° del centro.● Ajuste VR7 TRK. OFS (de seguimiento) de modo que el voltaje en TRK. ERR (desviación de seguimiento) de la patilla 2 de TP1 se ponga en 0V ± 50mV.● Ajuste VR6 FCS. OFS (compensación de foco) de modo que el voltaje de FCS. ERR (error de foco) en la patilla 6 de TP1 sea 0V ± 50mV.● Ajuste VR2 RF. OFS (compensación de RF) de modo que el voltaje de salida de RF en la patilla 1 de TP1 sea 100mV ± 50mV.
2	AJUSTE DEL NIVEL DE RF					
			Patilla 1 de TP1 (RF)	Alimentación del laser VR1	1.5Vp-p ^{+0.2V} _{-0V}	<ul style="list-style-type: none">● Ajuste el modo de TEST.● Reproduzca el disco de TEST y conecte la sonda de un osciloscopio a la RF de la patilla 1 (Salida de RF) de TP1 y mida el voltaje de P-P de la forma de onda de RF.● Ajuste VR1 (alimentación del láser) que el valor sea 1.5Vp-p ^{+0.2V}_{-0V}.
3	CONFIRMACIÓN DE LA ALIMENTACIÓN DE SALIDA DE LD (DIODO LÁSER)					
					Confirmación Menos de 0.13mW	<ul style="list-style-type: none">● Ajuste el modo de TEST.● Presione la tecla de [MULTI-SPEED]+[0] y encienda el LD (Diodo láser).● Ubique el sensor del medidor de potencia del láser inmediatamente arriba del objetivo, y confirme que la potencia de salida del LD sea menos de 0.13mW.
4	CONFIRMACIÓN DE ENCLAMIENTO DEL ENFOQUE Y DEL EJE					
	0.5V/div	100mseg /div	Patilla 1 de TP1 (Salida de RF)		Existe salida de RF Rotación normal	<ul style="list-style-type: none">● Ajuste del disco de TEST.● Ajuste el modo de TEST.● Cambie el captador cerca del centro del disco presionando la tecla de [MULTI-SPEED]+[4].* Tenga en cuenta que este paso deberá ser ejecutado.● Observe RF (Radio frecuencia) de la patilla 1 de TP1 con un osciloscopio y confirme que se saque la señal de RF después de presionar la tecla de [MULTI-SPEED]+[1].● Presione la tecla de [MULTI-SPEED]+[2] y asegúrese que el disco rota en la dirección normal casi a la velocidad especificada (tal como está cerca del centro del disco, la velocidad de rotación es alrededor de 300rpm) y que no rote anormalmente o inversamente.

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
5 AJUSTE DEL RETÍCULO						
						 <p>Fig. 7-7</p>
0,5V/div	5msseg /div	Patilla 2 de TP1 (TRK. ERR)	Reticulo	Punto cero		<ul style="list-style-type: none"> ● Ajuste el mode TEST. ● Cambie el captador cerca del centro del disco presionando la tecla de [MULTI-SPEED+] + [4] de modo que el tornillo de ajuste de retículo del captador pueda ser visto a través del orificio oval en el lado superior del servomecanismo. ● Inserte un \odot destornillador en el orificio del lado superior or del mecanismo como se muestra en la Fig. 7-7, y confirme que gira el tornillo de retículo. ● Presione la tecla de [MULTI-SPEED+] + [1] y [MULTI-SPEED+] + [2] secuencialmente y cierre el servo de enfoque y el del eje. (No cierre el servo de seguimiento.) ● Observe la forma de onda en TRCK.ERR (Error de seguimiento) de la patilla 2 de TP1 con un osciloscopio. Luego inserte un filtro de paso bajo de corte. (Fig. 7-8)  <p>Fig. 7-8</p>
			Reticulo	Amplitud máxima		<ul style="list-style-type: none"> ● Gire el \odot destornillador y encuentre el punto cero. (Foto. 7-1) ● Luego, gire lentamente el \odot destornillador hacia el sentido contrario del reloj desde el punto cero y ajuste en el punto donde la forma de onda (Señal de error de seguimiento) primeramente se ponga a una amplitud máxima. (Vea Foto. 7-2)
<p>Nota:</p> <p>Si el \odot destornillador se presiona fuertemente, el captador se mueve hacia el centro del disco, por consiguiente el ajuste resulta difícil.</p> <ul style="list-style-type: none"> ● Finalmente, asegúrese de confirmar que la señal de error de seguimiento (en este momento, no se ha insertado el filtro de paso bajo de corte de 4kHz) cuando el captador se mueve hacia el centro del disco y el voltaje de P-P de la señal de error de seguimiento en la circunferencia exterior del disco no haya variado considerablemente. Cuando se desvía el nivel arriba de $\pm 10\%$, ajuste de nuevo girando el tornillo de retículo a un punto de amplitud de error mínimo. 						

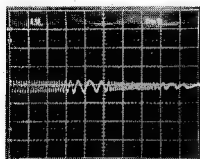


Foto. 7-1
Punto nulo

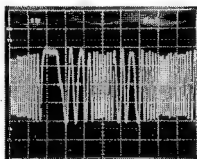


Foto. 7-2
Amplitud máxima

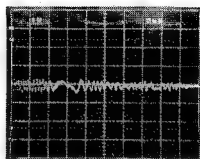
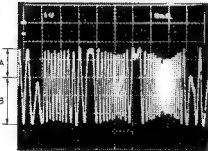
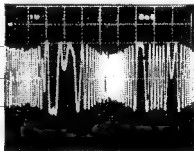
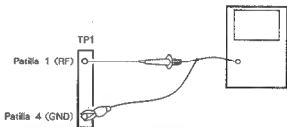
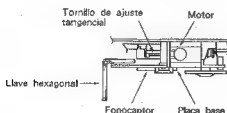


Foto. 7-3
Esta no es la forma de onda de punto nulo

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
6 AJUSTE DEL EQUILIBRIO DE SEGUIMIENTO						
	0,5V/div	5mseg /div	Patilla 2 de TP1 (TRK. ERR)	VR5 (TRK. BAL)	TRK. ERR	<ul style="list-style-type: none">● Ajuste el disco de TEST.● Ajuste el mode de TEST.● Cambie el captador cerca del centro del disco presionando la tecla de [MULTI-SPEED+][2].● Presione la tecla de [MULTI-SPEED+][1] y la tecla de [MULTI-SPEED+][2] para comenzar a voltear el disco.● Observe TRK. ERR (Error de seguimiento) de la patilla 2 de TP1 con un osciloscopio y ajuste con el volumen de TRK. BAL (Equilibrio de seguimiento) de VR5 de modo que la componente de CC del error de seguimiento desaparezca. <p>Nota: Antes de realizar los ajustes indicados arriba, asegúrese de compensar el error de seguimiento.</p>
<div><div><p>A ≠ B</p></div><div><p>A = B</p></div></div> <p>Foto. 7-4 Elementos de CC mezclados en la señal</p> <p>Foto. 7-5 Elementos de CC eliminados</p>						

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
7	AJUSTE TANGENCIAL					
	200nseg /div	Patilla 1 de TP1 (Salida de RF)	Tornillo de ajuste de la tangencial	Mejor imagen de prueba	<ul style="list-style-type: none"> ● Ajuste el disco de TEST. ● Ajuste el mode de TEST. ● Cambie el carro cerca del centro del disco presionando la tecla de [MULTI-SPEED+] + [4]. ● Presione la tecla de [MULTI-SPEED+] + [1], [MULTI-SPEED+] + [2] y [MULTI-SPEED+] + [3] secuencialmente, y cierre todos los servos. (El indicador de pausa se enciende.) ● Observe el RF de la patilla 1 (Salida de RF) de TP1 con un osciloscopio y ajuste con el tornillo de la tangencial de modo que la imagen de prueba resulte nítida. (Fig. 7-9 y 7-10) ● El punto de ajuste es el punto medio entre el punto donde la imagen de prueba se deteriora girando el tornillo de la tangencial en el sentido de las manecillas del reloj, y el punto donde la imagen de prueba se deteriora girando el tornillo de la tangencial en contra del sentido de las manecillas del reloj. Como un criterio, observe que la forma de onda en conjunto sea nítida y que una de las figuras de diamante esté dentro de la imagen de prueba (Foto. 7-7), y ajuste al punto óptimo donde la forma de diamante se vea relativamente como una línea fina. 	
 <p>Fig. 7-9</p> <p>(Nota) Durante el ajuste, sostenga la llave hexagonal hacia arriba para evitar que el cuerpo del captador vaya hacia abajo.</p>						



En la figura siguiente, las partes superior e inferior son copuestas a las del producto real.

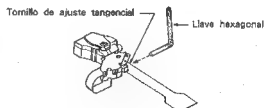


Fig. 7-10 Ajuste tangencial

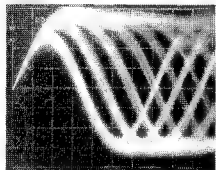


Foto. 7-6

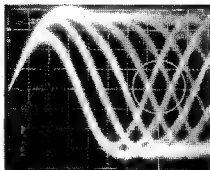


Foto. 7-7

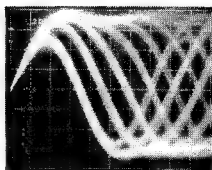


Foto. 7-8

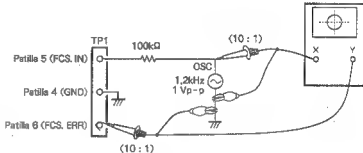
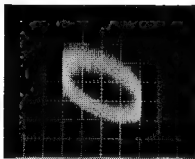
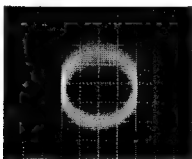
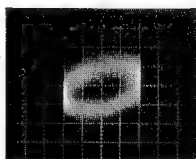
Parte que debe observar



Insatisfactorio

Ajuste óptimo

Insatisfactorio

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Ítems de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
8 AJUSTE DE LA GANANCIA DE ENFOQUE						
	20mV/div. 5mV/div. CH1 (X). CH2 (Y) (SONDA 10:1)		Eje X : Patilla 5 de TP1 (FCS.IN) Eje Y : Patilla 6 de TP1 (FCS.ERR)	VR3 (FCS.GAN)	Diferencia de fase 90°	<ul style="list-style-type: none"> ● En el estado de POWER OFF (apagado), conecte el osciloscopio y el oscilador como se muestra en la Fig. 7-11. ● Ponga la unidad en el modo de reproducción (PLAY) normal. ● Encienda el oscilador y extraiga 1.2kHz 1Vp-p. <p>Nota: Dependiendo de los osciladores, algunos de ellos producen CC cuando son encendidos. Por lo tanto, es conveniente conectar el oscilador después del encendido.</p> <ul style="list-style-type: none"> ● Ajuste con el volumen de FCS.GAN (Ganancia de enfoque) de VR3 de modo que la figura de Lissajous del osciloscopio sea un círculo horizontal (90° de diferencia de fase).
						Fig. 7-11
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Foto. 7-9 Ganancia sobrecompensada</p> </div> <div style="text-align: center;">  <p>Foto. 7-10 Ganancia óptima</p> </div> <div style="text-align: center;">  <p>Foto. 7-11 Ganancia subcompensada</p> </div> </div>						

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
9 AJUSTE DE LA GANANCIA DE SEGUIMIENTO						
	50mV/div, 5mV/div CH1 (X), CH2 (Y) (SONDA 10:1)		Eje X : Pantalla 3 de TP1 (TRK. IN) Eje Y : Pantalla 2 de TP1 (TRK. ERR)	VR4 (TRK. GAN)	90° de diferencia	<ul style="list-style-type: none"> ● En el estado de POWER OFF (apagado), conecte un osciloscopio y un oscilador como se muestra en la Fig. 7-12. ● Ponga la unidad en el modo de reproducción (PLAY) normal. ● Encienda el oscilador y extraiga 1.2 kHz 2 Vp-p. <p>Nota: Dependiendo en los osciladores, algunos de ellos producen CC cuando son encendidos. Por la tanto, es conveniente conectar el oscilador después del encendido.</p> <ul style="list-style-type: none"> ● Ajuste con el volumen de TRK. GAN de VR4 (Ganacia de seguimiento) de modo que la figura de Lissajous del osciloscopio llegue a ser un círculo horizontal (90° de diferencia de fase).

The diagram illustrates a test circuit for adjusting the tracking gain (TRK. GAN) of an oscilloscope. It features a 100kΩ resistor connected to TP1, a 38kΩ resistor connected to TP2, and a 0.001μF capacitor connected to TP3. A 1.2kHz 2Vp-p oscillator is connected to the circuit. The oscilloscope is set to 10:1 probe attenuation. The Lissajous figure on the screen is a horizontal circle, indicating a 90° phase difference between the signals on the X and Y axes.

Fig. 7-12

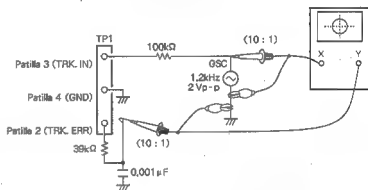
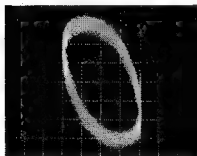
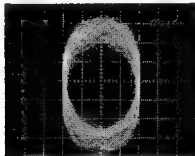
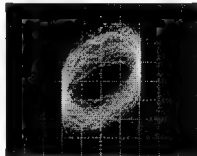


Fig. 7-12

Foto. 7-12
Ganancia sobrecompensadaFoto. 7-13
Ganancia óptimaFoto. 7-14
Ganancia subcompensada

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
10	AJUSTE DE LA FRECUENCIA PROPIA DE VCO					
			Patilla 8 de TP2 (PLCK)	VR8 (VCO. ADJ)	4.275 ± 0.01MHz	<ul style="list-style-type: none">● Ajuste el modo de TEST.● Cortocircuite entre las patillas 25 y 26 de IC1 en el ensamblaje DEGT con un destornillador \odot, etc.● Conecte el frecuencímetro, que pueda medir arriba de 10 MHz, a la patilla 8 de TP2 (PLCK).● Ajuste con el volumen VCO ADJ (ajuste de VCO) de VR8 de modo que el valor del frecuencímetro se ponga en 4.275 ± 0.01 MHz.
11	MÉTODO PARA CONFIRMAR EL CARÁCTER S (ERROR DE ENFOQUE)					
			Patilla 6 de TP1 (FCS.ERR)			<ul style="list-style-type: none">● Ajuste el modo de TEST.● Haga un cortocircuito entre FCS.IN (Entrada de enfoque) de la patilla 5 de TP1 y GND.● Presione la tecla de [MULTI-SPEED] + [I] y observe la forma de onda de FCS.ERR (Error de enfoque) de la patilla 6 de TP1 con un osciloscopio.

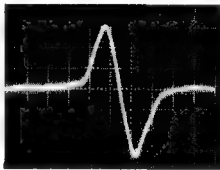


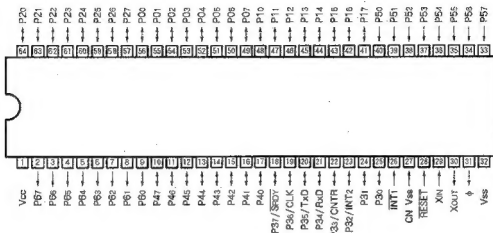
Foto. 7-15 Error de enfoque

8. IC DESCRIPTION

■ M50747SP

SYSTEM CONTROL (ROM LESS TYPE)

● Pin connections (Top view)



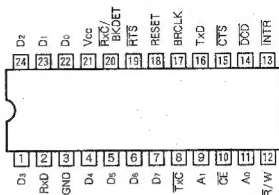
● Pin functions

Pin	Mark	Pin name	I/O	Function
1	Vcc	Power supply input	I	Apply +5V to Vcc.
2 - 9	P67 - P60	Output port P6	O	8 bits output port.
10 - 17	P47 - P40	Input/output port P4	I/O	8 bits input/output port. When P36, P35 and P34 is used for serial I/O, it respectively become CLK, TxD and RxD. When P37 is used for serial I/O of the clock synchronized type, it becomes \overline{SRDv} . P33 is combined with I/O terminal of timer X (CNTR). P32 is combined with lowernmost interrupt.
18	P37/ \overline{SRDv}	Input/output port P3		
19	P36/CLK			
20	P35/TxD			
21	P34/RxD			
22	P33/CNTR			
23	P32/INT2			
24	P31			
25	P30			
26	INT1	Interrupt input	I	Upper most interrupt input terminal.
27	CN Vss	CN Vss input		Connect to Vss.
28	RESET	Reset input		Set the "L" more than 2 μ s, it becomes reset state.
29	Xin	Clock input	O	Connect the crystal resonator.
30	Xout	Clock output		Timing output.
31	ϕ	Timing output		
32	Vss	Power supply input	I	Apply 0V to Vss.
33 - 40	P57 - P50	Input port P5	I/O	8 bits input port.
41 - 48	P17 - P10	Input/output port P1		8 bits input/output port.
49 - 56	P07 - P00	Input/output port P0		8 bits input/output port.
57 - 64	P27 - P20	Input/output port P2		8 bits input/output port.

HD64941

WALL BOX COMMUNICATION

Pin connections (Top view)



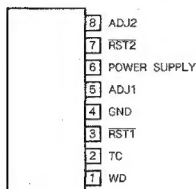
Pin functions

Pin	Mark	Pin name	I/O	Function
1	D ₃	DATA BUS ₀	I/O	Bilateral data bus which using for data transfer with the CPU. High impedance at the reset.
4-7	D ₄ -D ₇	DATA BUS ₇		
22-24	D ₀ -D ₂	DATA BUS ₂		
2	RxD	RECEIVER DATA	I	Serial data input terminal to the reception section. "Mark" : "H", "Space" : "L"
16	TxD	TRANSMITTER DATA	O	Serial data output terminal from the transmission section. "Mark" = "H", "Space" : "L" "H" at the transmission section is not operated, and "H" at the reset.
3	GND	GROUND		Ground
21	Vcc	POWER SUPPLY		+5V power supply.
8	TxC	TRANSMITTER CLOCK		Clock input terminal of the transmission section. TxD is used to synchronize with the transmission data when using the external transmission clock. TxC is used for the 1X/16X clock output terminal when using the internal transmission clock. Input state at the reset.
9	A ₁	ADDRESS LINE 0,1		Signal for select the internal register.
11	A ₀			
10	CE	CHIP ENABLE		Addressing terminal of the CPU and internal HD64941. • When CE=L, perform the reading and writing operation to the internal register which is regulated with R/W, A ₀ and A ₁ • When CE=H, set the D ₀ through D ₇ to high impedance state.
12	R/W	READ/WRITE		Terminal for control the direction of the data transfer.
13	INTR	INTERRUPT		Output terminal of the interrupt required signal "H" at the reset.
14	DCD	DATA CARRIER DETECT		Detection input terminal of the data carrier. When DCD is "L", reception section is able to operate.
15	CTS	CLEAR TO SEND		Clear to send (transmission) input terminal. CTS have to "L" for operating the transmission section. When becomes "H" during transmit, the end of transmission after complete the character transmission in the shift register for the transmission.
17	BRCLK	BAUD RATE CLOCK		Clock input terminal for generating the internal baud rate. It's useless to use the external transmission and reception clocks (TxC and RxC.)
18	RESET	RESET		"0"clear terminal of the mode register 1 and 2, command register and status register.
19	RTS	REQUEST TO SEND		General-purpose output terminal. RTS outputs which inverting the bit 5 of the command register (CR). Usually, it is used for require the transmission.
20	RxC /BKDET	RECEIVER CLOCK / BREAK DETECTION		Clock input terminal of reception section. RxC is used to synchronize with the reception data when using the external reception clock. RxC is used for the output signal of brake detection (BK-DET) and the 1X/16X clock output terminal when using the internal reception clock. Input state at the reset.

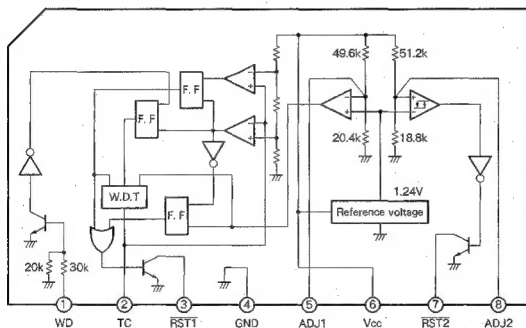
M5295L

WATCH-DOG TIMER

● Pin connections (Top view)



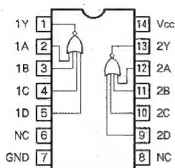
● Block diagram



■ TC74HC4002AP

DUAL 4-INPUT NOR GATE

● Pin connections (Top view)



Truth table

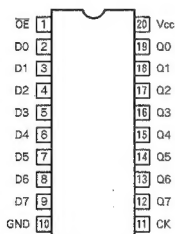
A	B	C	D	Y
H	X	X	X	L
X	H	X	X	L
X	X	H	X	L
X	X	X	H	L
L	L	L	L	H

X: Don't care

■ TC74HC574AP

OCTAL D-TYPE FLIP-FLOP WITH 3-STATE OUTPUT

● Pin connections (Top view)



Truth table

INPUT			OUTPUTS
OE	CK	D	Q (S74A)
H	X	X	Z
L		X	Qn
L		L	L
L		H	H

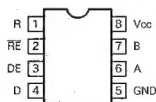
X: Don't Care

Z: High impedance

Qn (Qn): No change

■ SN75176BP

● Pin connections (Top view)



Truth table

INPUT	ENABLE	OUTPUTS	
		A	B
H	H	H	L
L	H	L	H
X	L	Z	Z

H = high level,

L = low level,

X = irrelevant,

Z = high impedance (off)